AA

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

November 29, 2001

The Special Counsel

The Honorable Thomas E. White
Secretary of the Army
The Pentagon
Washington, D.C. 20350-1000

Re: OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Mr. Secretary:

The U.S. Office of Special Counsel is authorized by law to receive disclosures of information from federal employees alleging violations of law, rule or regulation, gross mismanagement, gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety. 5 U.S.C. §§ 1213(a) and (b). As Special Counsel, if I find, on the basis of the information disclosed, that there is a substantial likelihood that one of these conditions exists, I am required to advise the appropriate agency head of my findings, and the agency head is required to conduct an investigation of the allegations and prepare a report. 5 U.S.C. §§ 1213(c) and (g).

For the reasons set forth below, I have concluded that there is a substantial likelihood that information provided to the Office of Special Counsel by former Utility Monitoring Control System Electronic Industrial Controls Operators Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca discloses violations of law, rule or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia. Accordingly, I am referring this information to you for an investigation of the allegations described below and a report of your findings within 60 days of your receipt of this letter.

The Information Disclosed

As noted, the relevant information was provided to the Office of Special Counsel by former UMCS Electronic Industrial Controls Operators, WG-2606-11, Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca[1], who have consented to the release of their names.

[1] Currently, the whistleblowers are employed in the following positions at Fort Gordon: Mr. Fullbright is a utilities sales clerk in the Facilities Branch, PWD, DPW; Mr. Ellis and Mr. Skvarca are construction representatives in Engineering Planning and Services, PWD, DPW; Mr. Poston works as a

The approximate duration of each operator's period of employment at UMCS is as follows: Mr. Fullbright, 12 years; Ms. Reed, 6 years; Mr. Griffin, 16 years; Mr. Ellis, 6 years; Mr. Combs, 14 years; Mr. Poston, 6 years; and Mr. Skvarca, 4 years.

The whistleblowers allege that, throughout their period of employment at UMCS, management disregarded safety guidelines and operator training requirements. Although these violations began when UMCS was run by in-house personnel (prior to May 1, 2001), most of them continue to the present day, when operations are under the control of private contractor ERI Services, Inc. (ERI). The whistleblowers allege that DPW officials who have oversight responsibility for the contract are aware that the contractor is violating these regulations and requirements, yet they fail to enforce the contractor's compliance. The whistleblowers assert that management's failure to enforce these safety guidelines and training requirements poses a serious threat to the safety of UMCS employees.

The background of the whistleblowers' allegations is as follows:

UMCS, supplemented by power from Georgia Power Company, supplies electricity to all of Fort Gordon. It consists of three 4500kw power plants, each comprised of three 1500kw electric generators that are powered by several 6-cylinder diesel engines. The power plants produce a 4160-volt electrical current. UMCS plant operators are responsible for manually operating the electrical generators, managing and distributing power demands among the different generators, regulating the flow of electricity from the power plants, monitoring the diesel engine instrument control panels, monitoring the heating and air conditioning systems, and keeping maintenance records and energy consumption logs. In the course of performing these duties, the operators often have to perform minor maintenance and repairs on the generators and engines.

Prior to May 1, 2001, UMCS operations were performed in-house by the seven whistleblowers. During that time, the operators repeatedly made requests to their team leader, Mr. Pavliscsak, Engineer Technician, GS-802-11, to their second-line supervisor Curtis Oglesby, Chief of the Facilities Branch, and to the Post Safety Office that (1) they be provided additional training for operating the high-voltage equipment, (2) that they be issued adequate protective clothing and safety equipment, and (3) that UMCS institute and follow clear, written Standard Operating Procedures (SOPs), including a procedure for lockout/tagout functions.

---

target devices repairer at Range Control, Directorate of Plans, Training, and Mobilization; Ms. Reed has retired from Federal service; and Mr. Griffin and Mr. Combs have retired from Federal Service and now work as UMCS operator mechanics for contractor ERI, Services at UMCS, PWD, DPW.

The whistleblowers state that they first asked management for further training in 1995, when UMCS acquired new 4500kw power plants. They allege that at that time they were only given a short 30-minute demonstration before they were expected to operate and maintain this dangerous high-voltage machinery. Among the seven operators, only Mr. Poston had prior training and experience working with electrical power generating equipment.

In 2000, after the operators had repeatedly requested training for five years, management provided them with a two-day training class, conducted by contractor Engine Systems. However, the whistleblowers report that the instructor of the class informed them that the two-day class only offered a brief introduction and overview, and taking it would not qualify them to operate and maintain the generators.

According to Army Regulation (AR) 600-55, paragraph 7-1, and AR 420-49, paragraph 2-4, any employee who operates machinery requiring over 500 watts of power must be licensed and certified in accordance with Federal, state, and local requirements. As UMCS operators work with nine 1500kw generators, it appears that they are subject to these licensing requirements. The whistleblowers allege, however, that their supervisors and the Post Safety Office have advised them that the qualification requirements in AR 600-55 are not mandatory, but instead they merely "serve as a guideline." However, even if management's stated position is correct and compliance with this regulation is not mandatory, the whistleblowers nevertheless contend that operation of this high-voltage machinery without proper training poses a serious threat to the operators' safety, exposing them to possible electrocution.

The operators also allege that they repeatedly requested adequate safety equipment and heavy-duty personal protective clothing, such as rubber aprons, electrical safety gloves, protective glasses, and safety shoes; however, management was slow to honor these requests, and only supplied some of the requested equipment. According to the whistleblowers, this safety equipment and protective clothing was necessary because, in the course of monitoring the diesel engines and power generators, they were regularly exposed to high voltage electricity and often handled corrosive battery acid, oil products, diesel fuel, and antifreeze. OSHA guidelines at 29 CFR § 1910.132(a) provide that protective equipment must be used when potentially hazardous conditions are present. Furthermore, adequate electrical protective equipment and clothing should meet OSHA standards set forth at 29 CFR 1919.137 and comply with American National Standards Institute (ANSI) guidelines. The whistleblowers state that management generally refused to order safety equipment for lack of funds. When management did order safety equipment, it ordered less expensive, noncompliant equipment that failed to provide adequate protection.

The whistleblowers allege that, in August 2000, Mr. Pavliscsak issued them locks and keys for performing lockout/tagout functions, and he insisted on retaining copies of each operator's key. Ms. Reed explains that "lockout/tagout" procedures are designed to protect operators from electrocution while they perform maintenance on high-voltage electrical equipment. Each operator is given a unique lock to the control panel to prevent coworkers from accidentally switching on the 4160-volt electrical current while the operator is working on a generator. According to OSHA regulation 29 CFR § 1910.147 and industry practice, each lock should have only one key, and that key should remain in the sole possession of the operator to whom it belongs. Ms. Reed asserts that Mr. Pavliscsak's decision to keep copies of the operators' lockout keys caused the operators to fear for their safety while working on the generators.

When UMCS management and the Post Safety Office failed to make the changes requested by the operators, the operators contacted OSHA. In September 2000, OSHA conducted an on-site inspection and cited UMCS for numerous safety violations. On October 13, 2000, OSHA issued a "Notice of Unsafe or Unhealthful Working Conditions." Among other violations, OSHA cited UMCS management for (1) failure to provide adequate protective equipment; (2) failure to conduct a workplace hazard assessment; (3) failure to provide adequate training required by 29 CFR § 1910.132(f)(1); and (4) failure to establish adequate lockout/tagout training and procedures pursuant to 29 CFR § 1910.147. The whistleblowers also report that OSHA instructed management to destroy the extra copies of the operators' lockout keys.

The whistleblowers state that, in response to OSHA's inspection, management attempted to correct some, but not all, of the cited violations. They state that on September 17, 2000, two days before OSHA was scheduled to conduct its inspection, management provided them with safety aprons and gloves. In April 2001, management finally issued them safety shoes. However, the whistleblowers allege that many of the other violations cited by OSHA were never corrected. For example, they state that OSHA informed management that the on-site emergency showers and eye washes did not meet OSHA's water pressure standard of producing 20 gallons of water per minute, see 29 CFR 1910.151(c) and ANSI standard Z358.1-1998, yet management never corrected this problem. The whistleblowers also contend that management never issued them protective glasses, nor did management ever destroy the extra copies of their lockout keys.

On January 1, 2001, the Fort Gordon DPW entered into a contract with ERI Services, Inc. (ERI) to perform UMCS operations. The operators' former supervisor, Mr. Pavliscsak, was appointed to serve as the contracting officer's representative (COR). On January 10, 2001, the UMCS operators were notified that their jobs were

going to be contracted out, and they would soon be transferred to other positions.[2] ERI assumed responsibility for UMCS operations on May 1, 2001.

According to Mr. Griffin and Mr. Combs, who currently work for the contractor, many of the problems that existed when UMCS was under Government control still persist under ERI. They attribute this situation in large part to a lack of involvement and enforcement on the part of Government officials responsible for overseeing the contract, including the COR Mr. Pavliscsak and DPW Energy Engineer Glenn Stubblefield. In particular, Mr. Pavliscsak, as the COR, is the person who was specifically appointed by the contracting officer to monitor contractor performance. Because he is also the former UMCS team leader, he should be very familiar with the laws and regulations applicable to UMCS operations.

First, Mr. Griffin alleges that Government officials failed to facilitate a smooth transition when UMCS passed from Government to contractor control. He states that, under the contract, the Government was obligated to provide ERI with detailed SOPs for running UMCS. It failed to do so, and, as a result, ERI is currently in the process of constructing its own SOPs based upon past experience with similar job sites. In the interim, however, UMCS has been operating without adequate guidelines. Specifically, Mr. Griffin reports that ERI does not yet have a lockout/tagout procedure in place, in violation of 29 CFR §1910.147(a)(3).

Mr. Griffin and Mr. Combs further allege that many of the safety hazards that existed when UMCS was under Government control still continue under ERI management. In addition to the potential danger created by the absence of a lockout/tagout procedure, Mr. Griffin reports that ERI has not issued the operators adequate safety equipment and protective gear, including safety shoes, glasses, and gloves, and Mr. Combs states that the emergency showers and eye washes on site still do not comply with OSHA standards.

Lastly, Mr. Griffin and Mr. Combs allege that the operators are required to operate dangerous high voltage equipment without adequate training. Although Mr. Griffin and Mr. Combs have prior on-the-job experience, they allege that at least one of the new operators has no previous experience with electrical generators. Mr. Griffin and Mr. Combs state that they still have not been licensed and certified in accordance with operator qualification requirements set forth at AR 600-55.

---

[2] Mr. Fullbright, Ms. Reed, Mr. Ellis, Mr. Poston, and Mr. Skvaroa were transferred to other positions at Fort Gordon (Ms. Reed has since retired from Federal service), and Mr. Griffin and Mr. Combs retired from Federal service in order to continue working at UMCS under contractor ERI.

The Special Counsel's Findings

As noted above, if I find that there is a substantial likelihood that information disclosed to my Office reveals violations of law, rule or regulation or a substantial and specific danger to public health or safety, I am required to send that information to the appropriate agency head for an investigation and report. 5 U.S.C. § 1213. Given the whistleblowers' apparent expertise regarding the matters they have disclosed, the detail they have provided, and their first-hand knowledge of many of the incidents they have described, I have concluded that there is a substantial likelihood that they have disclosed violations of law, rule, or regulation and a substantial and specific danger to public safety in the Fort Gordon Directorate of Public Works.

Accordingly, I am referring this information to you for an investigation of the allegations described above and a report of your findings within 60 days of your receipt of this letter. By law, the report must be reviewed and signed by you personally. Should you decide to delegate authority to another official to review and sign the report, your delegation must be specifically stated. The requirements of the report are set forth at 5 U.S.C. §§ 1213(c) and (d). A summary of section 1213(d) is enclosed.

In the event it is not possible to report on the matter within the 60-day time limit, as the statute requires, you may request in writing an extension of time not to exceed 60 days. Please be advised that an extension of time will not be granted automatically, but only upon a showing of good cause. Accordingly, in the written request for an extension of time, please state specifically the reasons the additional time is needed.

After making the determinations required by 5 U.S.C. § 1213(e)(2), copies of the report, along with any comments on the report from the person making the disclosure and any comments or recommendations by me will be sent to the President and the appropriate oversight committees in the Senate and House of Representatives. 5 U.S.C. § 1213(e)(3).

A copy of the report and any comments will be placed in a public file in accordance with 5 U.S.C. § 1219(a).

Please refer to our file number in any correspondence on this matter. If you need further information, please contact Catherine A. McMullen, Chief, Disclosure Unit, at (202) 653-6005. I am also available to you for any questions you may have.

Sincerely,

Elaine Kaplan

Enclosure

Enclosure

Requirements of 5 U.S.C. § 1213(d)

Any report required under subsection (c) shall be reviewed and signed by the head of the agency[1] and shall include:

(1) a summary of the information with respect to which the investigation was initiated;

(2) a description of the conduct of the investigation;

(3) a summary of any evidence obtained from the investigation;

(4) a listing of any violation or apparent violation of law, rule or regulation; and

(5) a description of any action taken or planned as a result of the investigation, such as:

(A) changes in agency rules, regulations or practices;

(B) the restoration of any aggrieved employee;

(C) disciplinary action against any employee; and

(D) referral to the Attorney General of any evidence of criminal violation.

In addition, we are interested in learning of any dollar savings, or projected savings, and any management initiatives that may result from this review.

[1] Should you decide to delegate authority to another official to review and sign the report, your delegation must be specifically stated.

BB

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON DC 20310-0104

Suspense: 29 March 2002
19 February 2002

MEMORANDUM FOR Headquarters Training & Doctrine Command, Office of the Staff Judge Advocate, ATTN: COL James Rosenblatt, Building 10, Room 319, Bernard Road, Fort Monroe, Virginia 23651-5000

SUBJECT: Whistleblower Investigation—Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia (OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578)

Enclosed for your action is a 29 November 2001 letter from the Office of Special Counsel, requesting an investigation of particular allegations and a report pursuant to 5 U.S.C. 1213(c)(1) and (g). The allegations disclosed by several former Utility Monitoring Control System Electronics Industrial Controls Operators cite violations of law, rule or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia. Specifically, the whistleblowers allege that throughout their period of employment at UMCS, management disregarded safety guidelines and operator training requirements. Most of the same violations that occurred while UMCS was being operated by federal employees continue to occur since May 1, 2001, when the operation went under the control of the contractor ERI Services, Inc.

A final response describing any actions taken to address the allegations should be prepared for the signature of the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA (M&RA)) who has been delegated the authority by the Secretary of the Army to review, sign and submit written reports of investigations of information and related matters transmitted to the Department of the Army by The Special Counsel, in accordance with Title 5, United States Code, sections 1213(c), (d) and (g). The final response should be submitted to this office AS SOON AS POSSIBLE BUT NOT LATER THAN 29 March 2002.

The Army's response will be available to the public. Therefore, our response and any supporting investigative report should be prepared in a manner intended to facilitate public understanding of the allegations and Army's response thereto. The requirements specified in 5 U.S.C. 1213(d) (copy enclosed) may be used as a guideline and should include findings, conclusions and corrective action. In all cases, please furnish for our review all backup materials supporting the proposed response that will be used to prepare the official response for the ASA (M&RA).

If necessary, I will seek an extension of the date for our reply to the Special Counsel. As soon as it becomes apparent that more time will be needed, you should forward to me a

Printed on Recycled Paper

written interim response requesting the extension and indicating the reasons for the request and the date by which the Special Counsel can expect to receive our final response.

Please note that due to changes in mail handling procedures brought on by concerns of anthrax mail contamination, the original Office of the Special Counsel letter to the Secretary of the Army dated 29 November 2001 was re-routed to special remote mail handling facilities for processing. The Office of the Special Counsel had to hand-deliver a copy of the original correspondence to the Secretary of the Army on 13 February 2002, thus the delay in forwarding the matter to you for appropriate action.

CASSANDRA TSINTOLAS JOHNSON
Associate Deputy General Counsel
(Human Resources)

CF: DAJA-LE
DA IG
DAEC-CA

CC

SUBJECT: Whistleblower Investigation—Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia (OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578)

Department of the Army report to The Special Counsel within the extension period granted.

I appreciate your assistance in granting the extension. Please advise me if this extension will be granted so I can proceed to the next step. I can be reached at 703-697-6493.

Cassandra Tsintolas Johnson

CASSANDRA TSINTOLAS JOHNSON
Associate Deputy General Counsel
(Human Resources)

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
102 MCNAIR DRIVE
FORT MONROE VIRGINIA 23651-1047

REPLY TO
ATTENTION OF
Staff Judge Advocate

10 April 2002

MEMORANDUM FOR MS CASSANDRA JOHNSON, OGC, HQDA, WASH, DC

SUBJECT: Special Investigation—Fort Gordon

1. We received the report of investigation regarding the Office of Special Counsel matter on 5 April 2002. We are completing our review of the packet and will dispatch it to you NLT 15 April.

2. Recommend you request an extension from the Office of Special Counsel to permit an opportunity for our office and your office to conduct a thorough and proper review. The processing sequence for this case was as follows: By memorandum dated 19 February 2002 you forwarded the case to TRADOC. It was received by TRADOC on 20 February 2002 and faxed to Fort Gordon the following day. The tasking memorandum to Fort Gordon was dated 25 February 2002 with a suspense date of 29 March 2002. We received the report on 5 April 2002 from Fort Gordon.

3. The reason that the investigation at Fort Gordon took as long as it did can be attributed to two factors. One, the case involved a very technical area regarding safety standards for electrical generators. The three investigators had to be trained on the safety standards so they could conduct a proper and thorough investigation. Second, it was necessary to obtain several documents from a multitude of sources. Securing the documents from the various sources required considerable time and coordination.

4. Will keep you advised as to the status of the report and provide for its prompt dispatch. Appreciate your advice and assistance.

James H. Rosenblatt

James H. Rosenblatt
COL, JA
Staff Judge Advocate

DD

DEPARTMENT OF THE ARMY

HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

REPLY TO
ATTENTION OF

ATJA

15 April 2002

MEMORANDUM FOR Office of the General Counsel, ATTN: Ms. Cassandra Johnson, 104 Army Pentagon, Washington, DC 20310-0104

SUBJECT: Whistleblower Investigation (Fort Gordon, Georgia)

1. Enclosed is the investigation report and draft response regarding the Fort Gordon Whistleblower Investigation. Our office reviewed the report and determined that the investigating officers conducted a thorough investigation and that the evidence supports their conclusions. A copy of that legal review is attached.

2. Point of contact this office is MAJ Greg Bowman at (757) 788-2302.

FOR THE COMMANDER:

James H. Rosenblatt

Encl

JAMES H. ROSENBLATT
Colonel, JA
Staff Judge Advocate

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

REPLY TO
ATTENTION OF

ATJA

15 April 2002

MEMORANDUM FOR Office of the General Counsel, ATTN: Ms. Cassandra Tsintolas Johnson, 104 Army Pentagon, Washington, DC 20310-0104

SUBJECT: Whistleblower Investigation; Fort Gordon Utilities Monitoring and Control System (UMCS)

1. We reviewed the subject action and it is legally sufficient. The investigating officers thoroughly examined the Special Counsel's (SC) concerns and provided a detailed investigative report. As noted below, the evidence and applicable standards support the investigator's findings.

a. Based on the SC's letter, the investigators properly focused on four key areas: safety, training, certifications, and contractor oversight. The report demonstrates that they systematically gathered available evidence regarding each area and properly applied Occupational Safety and Health Standards (OSHA), Army Regulations (AR), and/or contractual terms.

(1) Safety/Training/Contract Oversight. The investigators obtained documentary evidence demonstrating that the UMCS personnel have personal protective equipment (PPE) and PPE training, have appropriate "lock/tag out" procedures and that the contractor's performance is periodically reviewed by Fort Gordon officials.

(a) Regarding safety and training, OSHA specifically reviewed the UMCS working conditions and found five safety violations in October 2000. In response, the Fort Gordon Garrison Commander formally addressed each of OSHA's concerns and OSHA issued no further requirements to Fort Gordon. Regarding lock/tag out procedures, the investigators properly determined that OSHA standards (29 CFR 1910.147) do not prevent multiple "lock/tag out" keys, so long as, proper safety measures are in place.

(b) Regarding contract oversight, the investigators determined that Noresco (the current contractor) has a documented site safety plan, a training program, and appropriate SOPs to ensure the safety of the generator operators. Also, the installation has a well trained, experienced contracting officer's representative, who routinely reviews Noresco's performance.

(2) Certifications. The investigators properly analyzed the certification and training requirements of AR 600-55 and AR 420-49 and found that no specific certification requirements apply to the operators of the UMCS electric generators. It should be noted that Fort Gordon will continue to review federal, state, and local guidelines to comply with any future licensing mandates.

b. Finally, the report format complies with the requirements of 5 U.S.C. 1213(d).

2. Conclusion. The evidence supports the investigators conclusion that no current legal or regulatory violations exist and that there are no current public safety threats in the UMCS operations. POC is the undersigned at (757) 788-2302.

GREGORY L. BOWMAN
MAJ, JA
Chief, MALD

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280

REPLY TO
ATTENTION OF:

ATZH-GC

APR 3 2002

MEMORANDUM FOR Staff Judge Advocate, U.S. Army Training and Doctrine Command, Fort Monroe, VA 23651-5000

SUBJECT: Office of Special Counsel Whistleblower Investigation

1. Reference: Memorandum, Office of the General Counsel, Headquarters, Department of the Army, Subject: Whistleblower Investigation — Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia (OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578), dated 19 February 2002 (Encl 1).

2. The cited memorandum concerns allegations made by seven present or former employees of the UMCS section. Those allegations have been investigated in detail, and no current safety issues, unsatisfied training requirements, or violations of law or regulation were found. The investigation and supporting documents are enclosed (Encl 2). Also enclosed is a proposed draft letter for signature by the Secretary of the Army (Encl 3).

3. The point of contact is Mr. J. Terence Smith, Deputy to the Garrison Commander, DSN 780-6300, or LTC Maurice A. Lescault, Deputy Staff Judge Advocate, DSN 780-1854.

3 Encl
as

JOHN P. CAVANAUGH
Major General, USA
Commanding General

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON DC 20310-0104

Suspense: 29 March 2002
19 February 2002

MEMORANDUM FOR Headquarters Training & Doctrine Command, Office of the Staff Judge Advocate, ATTN: COL James Rosenblatt, Building 10, Room 319, Bernard Road, Fort Monroe, Virginia 23651-5000

SUBJECT: Whistleblower Investigation—Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia (OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578)

Enclosed for your action is a 29 November 2001 letter from the Office of Special Counsel, requesting an investigation of particular allegations and a report pursuant to 5 U.S.C. 1213(c)(1) and (g). The allegations disclosed by several former Utility Monitoring Control System Electronics Industrial Controls Operators cite violations of law, rule or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia. Specifically, the whistleblowers allege that throughout their period of employment at UMCS, management disregarded safety guidelines and operator training requirements. Most of the same violations that occurred while UMCS was being operated by federal employees continue to occur since May 1, 2001, when the operation went under the control of the contractor ERI Services, Inc.

A final response describing any actions taken to address the allegations should be prepared for the signature of the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA (M&RA)) who has been delegated the authority by the Secretary of the Army to review, sign and submit written reports of investigations of information and related matters transmitted to the Department of the Army by The Special Counsel, in accordance with Title 5, United States Code, sections 1213(c), (d) and (g). The final response should be submitted to this office AS SOON AS POSSIBLE BUT NOT LATER THAN 29 March 2002.

The Army's response will be available to the public. Therefore, our response and any supporting investigative report should be prepared in a manner intended to facilitate public understanding of the allegations and Army's response thereto. The requirements specified in 5 U.S.C. 1213(d) (copy enclosed) may be used as a guideline and should include findings, conclusions and corrective action. In all cases, please furnish for our review all backup materials supporting the proposed response that will be used to prepare the official response for the ASA (M&RA).

If necessary, I will seek an extension of the date for our reply to the Special Counsel. As soon as it becomes apparent that more time will be needed, you should forward to me a

Printed on Recycled Paper

written interim response requesting the extension and indicating the reasons for the request and the date by which the Special Counsel can expect to receive our final response.

Please note that due to changes in mail handling procedures brought on by concerns of anthrax mail contamination, the original Office of the Special Counsel letter to the Secretary of the Army dated 29 November 2001 was re-routed to special remote mail handling facilities for processing. The Office of the Special Counsel had to hand-deliver a copy of the original correspondence to the Secretary of the Army on 13 February 2002, thus the delay in forwarding the matter to you for appropriate action.

CASSANDRA TSINTOLAS JOHNSON
Associate Deputy General Counsel
(Human Resources)

CF: DAJA-LE
DA IG
DAEC-CA

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

November 29, 2001

The Special Counsel

The Honorable Thomas E. White
Secretary of the Army
The Pentagon
Washington, D.C. 20350-1000

Re: OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Mr. Secretary:

The U.S. Office of Special Counsel is authorized by law to receive disclosures of information from federal employees alleging violations of law, rule or regulation, gross mismanagement, gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety. 5 U.S.C. §§ 1213(a) and (b). As Special Counsel, if I find, on the basis of the information disclosed, that there is a substantial likelihood that one of these conditions exists, I am required to advise the appropriate agency head of my findings, and the agency head is required to conduct an investigation of the allegations and prepare a report. 5 U.S.C. §§ 1213(c) and (g).

For the reasons set forth below, I have concluded that there is a substantial likelihood that information provided to the Office of Special Counsel by former Utility Monitoring Control System Electronic Industrial Controls Operators Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca discloses violations of law, rule or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia. Accordingly, I am referring this information to you for an investigation of the allegations described below and a report of your findings within 60 days of your receipt of this letter.

The Information Disclosed

As noted, the relevant information was provided to the Office of Special Counsel by former UMCS Electronic Industrial Controls Operators, WG-2606-11, Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca[1], who have consented to the release of their names.

[1] Currently, the whistleblowers are employed in the following positions at Fort Gordon: Mr. Fullbright is a utilities sales clerk in the Facilities Branch, PWD, DPW; Mr. Ellis and Mr. Skvarca are construction representatives in Engineering Planning and Services, PWD, DPW; Mr. Poston works as a

The approximate duration of each operator's period of employment at UMCS is as follows: Mr. Fullbright, 12 years; Ms. Reed, 6 years; Mr. Griffin, 16 years; Mr. Ellis, 6 years; Mr. Combs, 14 years; Mr. Poston, 6 years; and Mr. Skvarca, 4 years.

The whistleblowers allege that, throughout their period of employment at UMCS, management disregarded safety guidelines and operator training requirements. Although these violations began when UMCS was run by in-house personnel (prior to May 1, 2001), most of them continue to the present day, when operations are under the control of private contractor ERI Services, Inc. (ERI). The whistleblowers allege that DPW officials who have oversight responsibility for the contract are aware that the contractor is violating these regulations and requirements, yet they fail to enforce the contractor's compliance. The whistleblowers assert that management's failure to enforce these safety guidelines and training requirements poses a serious threat to the safety of UMCS employees.

The background of the whistleblowers' allegations is as follows:

UMCS, supplemented by power from Georgia Power Company, supplies electricity to all of Fort Gordon. It consists of three 4500kw power plants, each comprised of three 1500kw electric generators that are powered by several 6-cylinder diesel engines. The power plants produce a 4160-volt electrical current. UMCS plant operators are responsible for manually operating the electrical generators, managing and distributing power demands among the different generators, regulating the flow of electricity from the power plants, monitoring the diesel engine instrument control panels, monitoring the heating and air conditioning systems, and keeping maintenance records and energy consumption logs. In the course of performing these duties, the operators often have to perform minor maintenance and repairs on the generators and engines.

Prior to May 1, 2001, UMCS operations were performed in-house by the seven whistleblowers. During that time, the operators repeatedly made requests to their team leader, Mr. Pavliscsak, Engineer Technician, GS-802-11, to their second-line supervisor Curtis Oglesby, Chief of the Facilities Branch, and to the Post Safety Office that (1) they be provided additional training for operating the high-voltage equipment, (2) that they be issued adequate protective clothing and safety equipment, and (3) that UMCS institute and follow clear, written Standard Operating Procedures (SOPs), including a procedure for lockout/tagout functions.

---

target devices repairer at Range Control, Directorate of Plans, Training, and Mobilization; Ms. Reed has retired from Federal service; and Mr. Griffin and Mr. Combs have retired from Federal Service and now work as UMCS operator mechanics for contractor ERI, Services at UMCS, PWD, DPW.

The whistleblowers state that they first asked management for further training in 1995, when UMCS acquired new 4500kw power plants. They allege that at that time they were only given a short 30-minute demonstration before they were expected to operate and maintain this dangerous high-voltage machinery. Among the seven operators, only Mr. Poston had prior training and experience working with electrical power generating equipment.

In 2000, after the operators had repeatedly requested training for five years, management provided them with a two-day training class, conducted by contractor Engine Systems. However, the whistleblowers report that the instructor of the class informed them that the two-day class only offered a brief introduction and overview, and taking it would not qualify them to operate and maintain the generators.

According to Army Regulation (AR) 600-55, paragraph 7-1, and AR 420-49, paragraph 2-4, any employee who operates machinery requiring over 500 watts of power must be licensed and certified in accordance with Federal, state, and local requirements. As UMCS operators work with nine 1500kw generators, it appears that they are subject to these licensing requirements. The whistleblowers allege, however, that their supervisors and the Post Safety Office have advised them that the qualification requirements in AR 600-55 are not mandatory, but instead they merely "serve as a guideline." However, even if management's stated position is correct and compliance with this regulation is not mandatory, the whistleblowers nevertheless contend that operation of this high-voltage machinery without proper training poses a serious threat to the operators' safety, exposing them to possible electrocution.

The operators also allege that they repeatedly requested adequate safety equipment and heavy-duty personal protective clothing, such as rubber aprons, electrical safety gloves, protective glasses, and safety shoes; however, management was slow to honor these requests, and only supplied some of the requested equipment. According to the whistleblowers, this safety equipment and protective clothing was necessary because, in the course of monitoring the diesel engines and power generators, they were regularly exposed to high voltage electricity and often handled corrosive battery acid, oil products, diesel fuel, and antifreeze. OSHA guidelines at 29 CFR § 1910.132(a) provide that protective equipment must be used when potentially hazardous conditions are present. Furthermore, adequate electrical protective equipment and clothing should meet OSHA standards set forth at 29 CFR 1919.137 and comply with American National Standards Institute (ANSI) guidelines. The whistleblowers state that management generally refused to order safety equipment for lack of funds. When management did order safety equipment, it ordered less expensive, noncompliant equipment that failed to provide adequate protection.

The whistleblowers allege that, in August 2000, Mr. Pavliscsak issued them locks and keys for performing lockout/tagout functions, and he insisted on retaining copies of each operator's key. Ms. Reed explains that "lockout/tagout" procedures are designed to protect operators from electrocution while they perform maintenance on high-voltage electrical equipment. Each operator is given a unique lock to the control panel to prevent coworkers from accidentally switching on the 4160-volt electrical current while the operator is working on a generator. According to OSHA regulation 29 CFR § 1910.147 and industry practice, each lock should have only one key, and that key should remain in the sole possession of the operator to whom it belongs. Ms. Reed asserts that Mr. Pavliscsak's decision to keep copies of the operators' lockout keys caused the operators to fear for their safety while working on the generators.

When UMCS management and the Post Safety Office failed to make the changes requested by the operators, the operators contacted OSHA. In September 2000, OSHA conducted an on-site inspection and cited UMCS for numerous safety violations. On October 13, 2000, OSHA issued a "Notice of Unsafe or Unhealthful Working Conditions." Among other violations, OSHA cited UMCS management for (1) failure to provide adequate protective equipment; (2) failure to conduct a workplace hazard assessment; (3) failure to provide adequate training required by 29 CFR § 1910.132(f)(1); and (4) failure to establish adequate lockout/tagout training and procedures pursuant to 29 CFR § 1910.147. The whistleblowers also report that OSHA instructed management to destroy the extra copies of the operators' lockout keys.

The whistleblowers state that, in response to OSHA's inspection, management attempted to correct some, but not all, of the cited violations. They state that on September 17, 2000, two days before OSHA was scheduled to conduct its inspection, management provided them with safety aprons and gloves. In April 2001, management finally issued them safety shoes. However, the whistleblowers allege that many of the other violations cited by OSHA were never corrected. For example, they state that OSHA informed management that the on-site emergency showers and eye washes did not meet OSHA's water pressure standard of producing 20 gallons of water per minute, see 29 CFR 1910.151(c) and ANSI standard Z358.1-1998, yet management never corrected this problem. The whistleblowers also contend that management never issued them protective glasses, nor did management ever destroy the extra copies of their lockout keys.

On January 1, 2001, the Fort Gordon DPW entered into a contract with ERI Services, Inc. (ERI) to perform UMCS operations. The operators' former supervisor, Mr. Pavliscsak, was appointed to serve as the contracting officer's representative (COR). On January 10, 2001, the UMCS operators were notified that their jobs were

going to be contracted out, and they would soon be transferred to other positions.[2] ERI assumed responsibility for UMCS operations on May 1, 2001.

According to Mr. Griffin and Mr. Combs, who currently work for the contractor, many of the problems that existed when UMCS was under Government control still persist under ERI. They attribute this situation in large part to a lack of involvement and enforcement on the part of Government officials responsible for overseeing the contract, including the COR Mr. Pavliscsak and DPW Energy Engineer Glenn Stubblefield. In particular, Mr. Pavliscsak, as the COR, is the person who was specifically appointed by the contracting officer to monitor contractor performance. Because he is also the former UMCS team leader, he should be very familiar with the laws and regulations applicable to UMCS operations.

First, Mr. Griffin alleges that Government officials failed to facilitate a smooth transition when UMCS passed from Government to contractor control. He states that, under the contract, the Government was obligated to provide ERI with detailed SOPs for running UMCS. It failed to do so, and, as a result, ERI is currently in the process of constructing its own SOPs based upon past experience with similar job sites. In the interim, however, UMCS has been operating without adequate guidelines. Specifically, Mr. Griffin reports that ERI does not yet have a lockout/tagout procedure in place, in violation of 29 CFR §1910.147(a)(3).

Mr. Griffin and Mr. Combs further allege that many of the safety hazards that existed when UMCS was under Government control still continue under ERI management. In addition to the potential danger created by the absence of a lockout/tagout procedure, Mr. Griffin reports that ERI has not issued the operators adequate safety equipment and protective gear, including safety shoes, glasses, and gloves, and Mr. Combs states that the emergency showers and eye washes on site still do not comply with OSHA standards.

Lastly, Mr. Griffin and Mr. Combs allege that the operators are required to operate dangerous high voltage equipment without adequate training. Although Mr. Griffin and Mr. Combs have prior on-the-job experience, they allege that at least one of the new operators has no previous experience with electrical generators. Mr. Griffin and Mr. Combs state that they still have not been licensed and certified in accordance with operator qualification requirements set forth at AR 600-55.

[2] Mr. Fullbright, Ms. Reed, Mr. Ellis, Mr. Poston, and Mr. Skvaroa were transferred to other positions at Fort Gordon (Ms. Reed has since retired from Federal service), and Mr. Griffin and Mr. Combs retired from Federal service in order to continue working at UMCS under contractor ERI.

The Special Counsel's Findings

As noted above, if I find that there is a substantial likelihood that information disclosed to my Office reveals violations of law, rule or regulation or a substantial and specific danger to public health or safety, I am required to send that information to the appropriate agency head for an investigation and report. 5 U.S.C. § 1213. Given the whistleblowers' apparent expertise regarding the matters they have disclosed, the detail they have provided, and their first-hand knowledge of many of the incidents they have described, I have concluded that there is a substantial likelihood that they have disclosed violations of law, rule, or regulation and a substantial and specific danger to public safety in the Fort Gordon Directorate of Public Works.

Accordingly, I am referring this information to you for an investigation of the allegations described above and a report of your findings within 60 days of your receipt of this letter. By law, the report must be reviewed and signed by you personally. Should you decide to delegate authority to another official to review and sign the report, your delegation must be specifically stated. The requirements of the report are set forth at 5 U.S.C. §§ 1213(c) and (d). A summary of section 1213(d) is enclosed.

In the event it is not possible to report on the matter within the 60-day time limit, as the statute requires, you may request in writing an extension of time not to exceed 60 days. Please be advised that an extension of time will not be granted automatically, but only upon a showing of good cause. Accordingly, in the written request for an extension of time, please state specifically the reasons the additional time is needed.

After making the determinations required by 5 U.S.C. § 1213(e)(2), copies of the report, along with any comments on the report from the person making the disclosure and any comments or recommendations by me will be sent to the President and the appropriate oversight committees in the Senate and House of Representatives. 5 U.S.C. § 1213(e)(3).

A copy of the report and any comments will be placed in a public file in accordance with 5 U.S.C. § 1219(a).

The Special Counsel

Please refer to our file number in any correspondence on this matter. If you need further information, please contact Catherine A. McMullen, Chief, Disclosure Unit, at (202) 653-6005. I am also available to you for any questions you may have.

Sincerely,

Elaine Kaplan

Enclosure

Enclosure

Requirements of 5 U.S.C. § 1213(d)

Any report required under subsection (c) shall be reviewed and signed by the head of the agency[1] and shall include:

(1) a summary of the information with respect to which the investigation was initiated;

(2) a description of the conduct of the investigation;

(3) a summary of any evidence obtained from the investigation;

(4) a listing of any violation or apparent violation of law, rule or regulation; and

(5) a description of any action taken or planned as a result of the investigation, such as:

(A) changes in agency rules, regulations or practices;

(B) the restoration of any aggrieved employee;

(C) disciplinary action against any employee; and

(D) referral to the Attorney General of any evidence of criminal violation.

In addition, we are interested in learning of any dollar savings, or projected savings, and any management initiatives that may result from this review.

[1] Should you decide to delegate authority to another official to review and sign the report, your delegation must be specifically stated.

REPORT OF INVESTIGATION

Whistleblower Allegations ---
Directorate of Public Works, Utility Monitoring Control System,
Fort Gordon, Georgia

REPORT OF INVESTIGATION

Whistleblower Allegations ---
Directorate of Public Works, Utility Monitoring Control System,
Fort Gordon, Georgia

Table of Contents

Description	Page No.
Table of Contents	
Action Summaries & CG Memo	1 – 3
OGC Letter	Encl 1
Fort Gordon ROI	Encl 2
Noresco Site Safety Plan	Tab A
PPE Training Certifications	Tab B
Acknowledge of Receipt of SOP	Tab C
OSHA Lockout Procedures 1910.147	Tab D
OSHA Std Intrepretations 1910.147(e)(3)	Tab E
Photo of Safety Equipment at UMCS	Tab F
OSHA Notice of Violation dtd 10/13/2000	Tab G
Prime Power EMD Annual Inspection 03/96	Tab H
Prime Power EMD Annual Inspection 02/97	Tab I
Safety Training Certificates	Tab J
Additional Safety Training	Tab K
Lockout/Tagout Training Certifications	Tab L
Noresco Safety Training Documentation	Tab M
Scope of Work – Noresco Contract	Tab N
AR 600-55 excerpt	Tab O
TB 600-1 excerpt	Tab P
AR 420-49 excerpt	Tab Q
COR Training Documentation	TAB R
COR/Contractor weekly meeting documentation	Tab S
Noresco Safety SOP	Tab T
Draft Ltr from Sec Army to OSC	Encl 3
Follow-up Questions to the OGC Report	Encl 4
Pictures of equipment maintained	Tab U
OSHA Standard Interpretation 1910.269, Question 38	Tab V
OSHA Standard Interpretation 1910.269, Question 3	Tab W
OSHA Standard 1910.269(a)(2)(i) and (a)(2)(ii)	Tab X
Email from George Pruitt, Occupational Health Ofc	Tab Y
SOP for Hazardous Spills, dtd 28 Aug 95	Tab Z
Undated SOP for UMCS	Tab Z1
Copies of attachments for OGC Question 7	Tab Z2

REPORT OF INVESTIGATION

Whistleblower Allegations —
Directorate of Public Works, Utility Monitoring Control System,
Fort Gordon, Georgia

1. **Summary of the information with respect to which the investigation was conducted.**

Seven current or former employees of the Directorate of Public Works (DPW), Fort Gordon, Georgia, brought a number of allegations before the Office of Special Counsel. These allegations claimed a number of unsafe practices in the operation of the Utilities Monitoring and Control System (UMCS) in DPW. Specifically, it is alleged:

— that management over the UMCS disregarded safety guidelines and laws;

— that unsafe practices were allowed over an extended period, both before and after the UMCS function was contracted to the contractor ERI Services, Inc.; and

— that these unsafe practices continue into the present.

2. **Description of the conduct of the investigation.**

Fort Gordon's investigation of these allegations was conducted by Mr. Terence Smith, Deputy to the Garrison Commander, and Messrs. Frank Bennett and Greg Mims, Auditors, Internal Review and Audit Compliance Office, Fort Gordon. The process used to investigate the whistleblowers' allegations was to identify each allegation and devise a plan to determine its validity. A table is attached, reflecting this part of the process. After breaking down the allegations, the investigators concentrated their efforts on whether the conditions still exist at the present time, rather than whether they existed prior to May 1, 2001, when UMCS was still an in-house government operation. Their review consisted of a visit to the generator site and interviews with Mr. James Pavliscsak, Engineer Technician, Fort Gordon: Mr. Curt Oglesby, Chief of the Facilities Branch, Fort Gordon; Mr. Glenn Stubblefield, Energy Engineer, Fort Gordon; Ms Sargent, Contracting Officer, Huntsville, Alabama; Mr. Pete Batayias, site manager for Noresco (formerly ERI Services Inc.); and Mr. Reuben Fullbright, one of the whistleblowers. The allegations involved four main areas: safety, training, certifications, and management oversight of the Noresco contract. The narrative below addresses each of these four areas.

3. **Summary of evidence obtained from the investigation.**

A. **Safety.**

(1) Allegation: UMCS operators were not provided safety clothing and equipment, standing operating procedures (SOPs), or lock-out/tag-out procedures. When locks and keys were provided, management violated 29 CFR 1910.147 by maintaining a copy of each key.

(2) Fort Gordon Review: In accordance with the requirements of the UMCS contract, Noresco provided and instituted a Site Safety Plan (Encl A) that addresses all aspects of this allegation. The implementation of such a plan was one of the requirements that ERI (now, Noresco) had to satisfy in order for the contract to be awarded. In addition, Fort Gordon's investigators obtained documentation that shows all seven (7) whistleblowers as having received personal protective equipment (PPE) (Encl B), training, and an SOP on lock-out/tag-out procedures in November 2000 (Encl C).

Review of 29 CFR 1910.147 (Encl D) did not indicate that management could not maintain a copy of each key provided to the UMCS operators. The regulation states, at paragraph 1910.147(e)(3), "When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer....provided that the employer verifies the employee who applied the device is not at the facility, makes all reasonable effort to contact the employee to inform them the device has been removed, and ensuring the employees has this knowledge before returning to the facility." In its Standards Interpretation and Compliance Letters website dated February 28, 2000 (Encl E), the Occupational Safety and Health Administration (OSHA) states that the use of a master key is appropriate if the employer follows the instructions quoted above. Therefore, UMCS management at Fort Gordon has not violated OSHA standards. The copied keys were not maintained by the UMCS operators' immediate supervisor, Mr. Pavliscsak, but were stored in his supervisor's office. Currently, Noresco has proper lockout/tagout procedures that include special procedures for use of extra keys only when the primary keyholder employee is unavailable and a lockout/tagout device has to be removed. (See Encl T.) Fort Gordon's investigators visited the generator site and visually observed face shields, long vinyl gloves and aprons, and headgear, all of which was prominently displayed and available for use by the UMCS operators (Encl F). In addition, the investigators observed posted lock-out/tag-out reminder signs in the generator vans.

It should be noted that both under in-house government operation and under contractor operation, the UMCS operators (i.e., the whistleblowers) were not required by job description to maintain the generators or perform any maintenance on the high voltage equipment.

(3) Allegation: Another safety-related allegation that has been raised is that Fort Gordon did not correct all of the violations found in an on-site Occupational Safety and Health Administration (OSHA) inspection. An excerpt of the OSHA Notice of Unsafe or Unhealthful Working Conditions, dated October 13, 2000 and a response, is enclosed (Encl G).

(4) Fort Gordon Review: The Fort Gordon staff took action on each of the five violations cited by OSHA, and the Fort Gordon Garrison Commander reported back to OSHA by letter (Encl G) addressing each of the five violations and corrective actions and providing copies of supporting documentation. There has been no subsequent communication from OSHA to indicate that Fort Gordon's report of corrective actions was anything less than what OSHA expected.

The whistleblowers alleged that OSHA informed Fort Gordon management that the on-site emergency showers and eyewashes did not meet OSHA's water pressure standard of producing 20 gallons of water per minute, citing 29 CFR 1910.151(c) and ANSI standard Z358.1-1998, yet management never corrected this problem. However, in the OSHA Notice of Unsafe or Unhealthful Working Conditions, dated October 13, 2000, there was no mention of this issue. The Fort Gordon investigators observed the operation of the on-site showers and eyewashes, and they appeared to be fully functional. The installation Director of Public Works will be directed to ensure that all operational standards are met, in coordination with the Signal Branch Safety Office and the Industrial Hygiene Office.

B. **Training**

(1) Allegation: The UMCS operators repeatedly requested additional training for operating high-voltage equipment. In addition, Noresco has not provided training for operation of dangerous high-voltage equipment.

(2) Fort Gordon Review: In March 1996, the 3rd Platoon, B Company, 249th Engineer Battalion (Prime Power) from Fort Benning, Georgia, performed an annual generator inspection of the Fort Gordon generator plant. Their report ((Encl H) (Annexes omitted)) stated that the overall condition of the plant was good and that the personnel responsible for operation and maintenance of the plant were doing an excellent job. During their annual inspection that was conducted January 21 through February 13, 1997 (Encl I), Prime Power stated, "The condition of the plant is good. SSG [Staff Sergeant] Smith, 201st MI BN [Military Intelligence Battalion], Fort Gordon, GA, acts as liaison between EMCS and the loan program. He is doing an excellent job in ensuring that the required maintenance is done and that the EMCS [Energy Monitoring and Control System] personnel have been properly trained." SSG Smith was a fully trained generator repairman who was assigned as the maintenance worker for the plant. He worked at the plant three days a week. The February 1997 Prime Power report also states that a six-day EMD Refresher Training was given to the EMCS personnel.

In November 1999, all seven whistleblowers received training titled "Satellite Accumulation Point Training" (Encl J). This course consisted of EPA-type training on handling hazardous waste materials such as oil rags, used oil, and antifreeze. Completion certificates for this training are on file for all seven of the whistleblowers.

In March 2000, all seven whistleblowers received on-site training provided by Engine Systems, Inc., in the following areas: (a) basic diesel engine course, (b) power generation course, and (c) electrical safety course (Encl K). All seven whistleblowers satisfactorily completed the training, and completion certificates are on file to document the training.

On 14 November 2000, UMCS employees attended a class on lockout/tagout procedures. The Fort Gordon investigators obtained a signed attendance roster, completion certificates, and a signed statement that all seven whistleblowers received a copy of the Standing Operating Procedures (SOP) for lockout/tagout procedures (Encl L). In addition, the

employees were instructed on personal protective equipment (PPE). The Fort Gordon investigators obtained a signed class roster and a copy of the test each employee completed on PPE.

The investigators also received documentation showing that in December 2001, Noresco provided its employees with its ten-hour annual safety course, which consisted of the following: Introduction to OSHA, Electrical Safety, Fall Protection, Material Handling, Storage and Disposal, Stairways and Ladders, Scaffolds, Excavation, Hand and Power Tool Safety, Welding and Cutting, and Hazardous Communication and Asbestos (Encl M). In addition, since January 2002, Noresco has held weekly, documented safety meetings where employees can raise safety concerns. Such meetings also were conducted from June 2001 to January 2002, but those meetings were informal and often one-on-one and were not documented.

It should be noted that the training needed by UMCS operators is not the same as the training required for UMCS maintenance and repair. The Scope of Work for the Noresco Contract reflects the operating requirements of the UMCS Operations, UMCS Maintenance and Repair Services, UMCS Exclusions (i.e., items not included in the contract), Generator Plant Operations and Maintenance, Power Plant Exclusions, Hours of On-Base Coverage, and Hours of Remote UMCS Coverage. Review of these contract requirements (Encl N) and discussions with Mr. Pete Batayias, site manager for Noresco, indicate that UMCS maintenance requirements are performed by maintenance personnel and not by operational personnel. Additionally, Noresco is responsible for the high-voltage equipment, but it contracts repairs on that equipment to commercial vendors qualified in high-voltage repair. The operators do not do this repair work.

C. Certifications

(1) Allegation: Operators should be licensed and certified in accordance with Army Regulation (AR) 600-55 and AR 420-49. Management maintained that the provisions of these AR's were not mandatory. Even if compliance with these regulations is not mandatory, operation of the high voltage machinery without proper training poses a serious threat to the operators' safety.

(2) Fort Gordon Review: AR 600-55, Chapter 7-1a(1) and para 7-2b (Encl O) requires all military personnel and Army civilians to have an OF 346 and demonstrate their proficiency in order to operate electrical power generating equipment. In addition, general categories of training required are listed in TB 600-1, Chapter 11, change 3-27 (Encl P), and training should be geared to specific equipment . Fort Gordon's investigation showed that this training was provided by Prime Power when the equipment was installed in 1995, and annual update training was provided during site visits by Prime Power. (See Encl I.) While the investigation found no evidence that an OF 346 was issued to the whistleblowers, the documented training received complies with TB 600-1 operator training requirements. (Compare Encl P with Encl I.) Since operation of the plant is currently performed by Noresco (contractor), rather than by military or Army civilians, issuance of OF 346 to the

whistleblowers at this time would not be a remedy. AR 420-49, paragraph 2-4 (Encl Q), states that utility plant operators and maintenance personnel will be provided sufficient training to operate and maintain the plant, and it states that the personnel will meet Federal, state, and local certification requirements. Despite numerous inquiries to industry experts, Fort Gordon's investigators were unable to identify any Federal, state, or local certification requirements that apply to personnel in operator-type positions, such as the whistleblowers' positions, who operate equipment such as that at Fort Gordon. Fort Gordon's investigators are confident that the training being provided and procedures being followed by Noresco are appropriate. The installation will continue to research certification requirements and will ensure contractor compliance.

D. **Oversight of the Noresco Contract**

(1) Allegation: There is a lack of involvement and enforcement on the part of Government officials responsible for overseeing the Noresco contract. Noresco has no adequate SOP's.

(2) Fort Gordon Review: Since May 2001, when the UMCS function was first contracted, performance under the contract has been monitored by Fort Gordon's Contracting Officer's Representatives (CORs). The first COR was Mr. Glenn Stubblefield. The second COR was Mr. James Pavliscsak, who was appointed as COR in July 2001. The responsibilities of these CORs included monitoring and inspecting contractor performance, verifying that the contractor performed the technical requirements of the contract, notifying the contractor of deficiencies, and directing action to effect corrections. A draft Government Quality Assurance Plan has been drafted and is currently being staffed for comment and approval. (The appointment orders of the CORs and the draft Government Quality Assurance Plan are shown at Encl R.) As a key part of the contract oversight process, government employees, contract base operations employees, and Noresco management meet weekly to discuss contract issues. The contract began in May 2001, and these weekly meetings began on July 9, 2001. Documentation has been obtained providing detailed support for 28 of these meetings since that date, and continuing through the present date (Encl S, Showing the first and the most recent meetings). All elements of the contract are discussed at these meetings, including equipment, operations, maintenance and repair, and the safety program. (See notes from meeting #28, at Encl S.) Management informed the investigators that SOPs had formerly been in use for both the in-house government operation and the initial contract operation. The investigators received copies of these historical, superceded SOPs, but the SOPs were undated and the investigators could not confirm the dates that the SOPs were actually in effect. The investigators were able to view Noresco's current SOPs. The excerpts of these SOPs that are enclosed (Encl T) address the critical issues raised by the whistleblowers; i.e., personal protective equipment, lockout/tagout procedures, and safety in general.

4. **Listing of any violation or apparent violation of law, rule, or regulation.**

No such violations have been identified.

5. **Description of any action taken or planned as a result of the investigation.**

A. **Any changes in agency rules, regulations, or practices?** None.

B. **Any restoration of an aggrieved employee?** None. Not applicable.

C. **Any disciplinary action against an employee?** None.

D. **Any referral to the Attorney General of evidence of criminal violations?** None.

E. **Any other action taken or planned?** As mentioned in paragraph 3D(2) above, a draft Government Quality Assurance Plan has been drafted and is currently being staffed for comment and approval. We are also continuing to search for any additional Federal, state, or local standards, as mentioned in paragraph 3C(2) above. In addition, the installation Director of Public Works will be directed to ensure that all standards are met for the operation of emergency showers and eyewashes, as stated in paragraph 3A(4).

J. TERENCE SMITH
Deputy to the Garrison Commander

DRAFT LETTER
From the Secretary of the Army
To the US Office of Special Counsel

Ms. Elaine Kaplan
U.S. Office of Special Counsel
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

Dear Ms. Kaplan:

This is in response to your letter dated November 29, 2001, reference OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578, concerning allegations made by seven present or former employees of the Utility Monitoring Control System (UMCS) section, Public Works Division, Directorate of Public Works, Fort Gordon, Georgia.

The allegations have been investigated in detail at Fort Gordon, and the results of that investigation are enclosed. Please note that the investigation focused on practices in the UMCS section as they are today and as they have been since the work of this section was first contracted, in May 2001. The Fort Gordon investigation does address earlier issues, but the compliance documentation is more limited. No current safety issues, or unsatisfied training requirements, were identified. In addition, the investigating officer found no current violations of law or regulation.

Please note that my response to your letter was delayed by the changes in mail-handling procedures that were brought on by concerns of anthrax contamination. The original of your letter was re-routed to special remote mail-handling facilities for processing, and your office ultimately had to hand-deliver a copy of your letter to my office on February 13, 2002.

Sincerely,

White, etc.

A

TABLE OF CONTENTS

INTRODUCTION

SECTION I - ORGANIZATION

SECTION II – SITE SAFETY PLAN

SP-01 INDOCTRINATION AND PROGRAM ENFORCEMENT
SP-02 PERSONAL PROTECTIVE EQUIPMENT (PPE)
SP-03 SAFETY IN THE WORK AREA
SP-04 SAFETY MEETINGS/TRAINING SESSIONS
SP-05 ACCIDENT REPORTING PROCEDURE
SP-06 RECORDS AND REPORTS
SP-07 HAZARD COMMUNICATION WRITTEN PROGRAM
SP-08 TOOLS AND EQUIPMENT
SP-09 FALL PROTECTION
SP-10 LADDERS
SP-11 LEAD (OSHA 29 CFR 1926.62 and EM 385-1-1)
SP-12 PERSONNEL PLATFORMS AND AERIAL LIFTS (OSHA 29 CFR 1926.453 AND EM 385-1-1)
SP-13 SCAFFOLDING (OSHA 1926 Subpart L and 385-1-1)
SP-15 ELECTRICAL SAFETY (OSHA 29 CFR 1926 Subpart k and 385-1-1)
SP-15b LOCKOUT/TAGOUT PROCEDURE LOCKOUT
SP-16 CONFINED SPACE ENTRY (OSHA 29 CFR 1910.146 and 385-1-1)
SP-16A RESPIRATORY PROTECTION PROGRAM
SP-17 EXCAVATIONS AND TRENCHES (OSHA 29 CFR 1926, Subpart P, and 385-1-1)
SP-18 ASBESTOS (OSHA 29 CFR 1926.1101)
SP-19 MATERIAL HANDLING AND STORAGE (OSHA 29 CFR 1926, Subpart H)
SP-20 WELDING AND CUTTING (OSHA 29 CFR 1926 SUBPART J)
SP-21 FORKLIFT/LIFT-A-LOFT (OSHA 29 CFR 1926 SUBPART O)
SP-22 USE OF FORMS

SECTION III – FORMS

SAF-01: JOB PLANNING CHECKLIST
SAF-02: STARTUP SAFETY CHECKLIST
SAF-03: SAFETY INSPECTION CHECKLIST
SAF-04: SAFETY HAZARD/CODE VIOLATION
SAF-05: ACCIDENT REPORT
SAF-06: APPOINTMENT OF SITE COMPETENT PERSON
SAF-07: JOB HAZARD ANALYSIS
SAF-08: CONFINED SPACE ENTRY PERMIT –
SAF-09: NEW EMPLOYEE ORIENTATION PACKAGE
SAF-10: SAMPLE SAFETY MEETINGS
SAF-11: OSHA 200 INJURY & ILLNESS LOG

SP-02 PERSONAL PROTECTIVE EQUIPMENT (PPE)

GENERAL

- Proper safety equipment, for the task being performed, and proper training in the use of this equipment will be provided by each subcontractor .
- All employees are to be furnished, by his/her employer, hard hats, safety glasses, welder protection equipment, and respiratory equipment, when required.
- As a minimum requirement, employees will wear hard hats, eye protection, suitable work shoes, and proper clothing in the work area. (No open toe shoes, tank tops, shorts, etc.)
- Employees will be responsible for the proper care of all personal protective equipment issued to them.
- Reference current revision OSHA Standards 29 CFR 1926 Construction Industry, 29 CFR 1910 General Industry, and EM-385-1-1 for further requirements.

USE OF RESPIRATORS

- The Project Manager must be contacted when respirator use is required. In the absence of a Subcontractor written program, refer to the ERI General Safety Policy respiratory protection program and the OSHA standards for further requirements.
- Any questions about the type of personal protective equipment required for the specific task being performed should be directed to the employing subcontractor.

WELDING PROTECTION

Some suggested protective measures for welders and helpers as required are as follows:

- Flame-resistant gauntlet gloves shall be worn, except where welder is engaged in light work.
- Flame-resistant aprons of leather or other suitable material shall be worn as protection against radiated heat sparks.
- Clothing should be free of oil and grease. Woolen clothing is not as readily ignited as untreated cotton clothing and aids in protecting the welder from changes in temperature.
- Pockets and cuffs invite sparks. Collars and cuffs should be buttoned and cuffs turned up inside pants. Pockets should be eliminated from fronts of vests, shirts, and aprons, or should have buttoned flaps. Remove matches, cigarettes, and lighters (butane lighters).
- Fire-resistant leggings, high boots, or other leg protection should be required while welding.
- Safety shoes are recommended. Low-cut shoes with unprotected tops are not desirable.
- Fire-resistant capes or shoulder covers should be worn during welding operations.
- Headgear will be worn to prevent head burns while welding.
- Ear protection is sometimes desirable for overhead welding and welding in confined places. Protectors shall be required.
- For eye and head protection, high-quality welding helmets of glass fiber, vulcanized fiber, or other suitable material shall be required. The proper shade of welding lens shall be required and an adequate supply of cover lenses shall be available. Hand shields are generally substituted for helmets on light, intermittent work. Employees assisting the operator shall also wear protective lenses to avoid "welding flash" of eyes.

SAFETY HARNESSES AND LANYARDS

- Safety harnesses and tie-off lines shall be issued to employees who become exposed to serious fall hazards that cannot be controlled by use of standard scaffolding, guardrails, unprotected floor perimeters, unprotected floor openings, and other hazards beyond the control of the subcontractor.
- Safety harnesses are to be used on unprotected elevated work surfaces above 6 feet or in other unprotected environments to prevent falls.
- Belts are no longer acceptable as fall protection devices and shall not be used as such.
- All Personal Fall Arrest Systems must meet the requirements set forth in 29 CFR 1926, Subpart M, of the OSHA standards for construction.

SP-15B LOCKOUT/TAGOUT PROCEDURE LOCKOUT

SCOPE AND DESCRIPTION

- Lockout is the placement of a lock on an energy isolating device, in accordance with an established procedure so that the energy isolating device will not be operated until removal of the lock in accordance with an established procedure. This will help to ensure protection of personnel from injury while in, on, or around machines or equipment during repair, maintenance, operation, and related activities because of unexpected energization or startup of the machine or equipment.
- Lockout includes not only turning off and locking out energy sources, but also bleeding off or removing any pressure that may remain. In the case of gravity, blocking out or otherwise securing heavy machine parts is known as achieving zero mechanical state (ZMS).

LOCKOUT/TAGOUT PROCEDURE

- This procedure establishes the minimum requirements for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy and locked out or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, startup, or release of stored energy could cause injury.
- Appropriate employees shall be instructed in the safety significance of the lockout/tagout procedure. Each new or transferred employee whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout or tagout procedure.
- Conduct a survey to locate and identify all isolating devices in order to confirm which switch(s), valve(s), or other energy isolating devices apply to the equipment to be locked or tagged out. More than one energy source may be involved. Make a written list of the types and locations of energy isolating means.
- Notify all affected personnel that a lockout or tagout system is going to be utilized and the reason for it. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the associated hazards.
- If the machine or equipment is operating, shut it down by the normal stopping procedure.
- Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from all of its energy sources. Stored energy, such as that in springs, elevated machine members, rotating parts, hydraulic parts, air, gas, steam, or water pressure, must be discharged or dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
- Lockout and/or tagout the energy isolating devices with assigned individual locks and tags.
- After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push-button or other normal operating controls to ensure that the equipment will not operate.
- RETURN THE CONTROLS TO OFF OR NEUTRAL POSITION AFTER THE TEST. The machine or equipment is now locked out.

RESTORING EQUIPMENT TO SERVICE

When servicing or maintenance is complete and the machine or equipment is ready to return to normal operating conditions, the following steps shall be taken:

- Check the machine or equipment and the immediate area around it to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
- Check the work area to ensure that all employees have been safely positioned or removed from the area.
- Verify that the controls are in neutral.
- Remove the lockout/tagout devices and reenergize the machine or equipment. (Note that the removal of some forms of blocking may require re-energization prior to safe removal.)
- Notify affected personnel that the servicing or maintenance is completed and the machine or equipment is ready for use.

B

copy - DPW

PERSONAL PROTECTIVE EQUIPMENT (PPE) TRAINING CERTIFICATION ROSTER

NAME OF DIRECTORATE/DEPARTMENT/ACTIVITY: DPW / Facility Engineer
UMCS

	NAME OF EMPLOYEE(S) Please print	DATE TRAINED
1.	FORISH, JOHN F.	14 NOV 00
2.	JAMES V. PAVLISAK	14 NOV 00
3.	[illegible]	14 NOV 00
4.	GORDON GRIFFIN	14 Nov 00
5.	Reuben Ray Fullbright	14 Nov 00
6.	NEAL M. SKUARCA	14 NOV 00
7.	William E. Ellis Jr.	14 NOV 2000
8.	Charles F. Poston	14 NOV 00
9.	Dorsey D. Combs	20 Nov. 00
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

TYPE OF PPE: (CHECK ONE)	PPE USED YES	NO
HEAD		
HEAD PROTECTION (HARD HAT)	✓	
WELDING HELMET		
EYE		
SAFETY IMPACT GOGGLES	✓	
CHEMICAL SPLASH GOGGLES	✓	
WELDING GOGGLES		
LASER GOGGLES		
FULL FACE SHIELD	✓	
RESPIRATORY		
RESPIRATORS*		
EAR		
EARMUFFS	✓	
EARPLUGS*	✓	
HANDS		
SOLVENT RESISTANT GLOVES	✓	
SURGICAL GLOVES		
GLOVES, COLD SURFACE		
GLOVES, HOT SURFACE	✓	
GLOVES, ELECTRICAL SHOCK	✓	
GLOVES, WIRE MESH		

PERSONAL PROTECTIVE EQUIPMENT

Aprons

Earmuffs

Earmuff with radio headsets

Earplugs

Face shields

Splash goggles

Gloves—leather, nitrile, rubber, vinyl

Industrial safety glasses with side shields

Industrial safety glasses (prescription lens) with side shields

Safety footwear

Protective coveralls when changing oil filters or crawling under buildings.

Insulating tools

Ground fault circuit interrupters (portable extension cord type)

Lockout combination hasp

Lockout padlocks

Tag out tags

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   (c) Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   a. Ear, foot, eye/face and head protection
   b. Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   (d) Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   d. All of the above
   (e) Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   (a.) True b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   (a) True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   (b.) Your employer
   c. You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   (a.) You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   (c.) Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   a. You realize exactly what your PPE can and cannot do for you
   b. You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   (e) Both a. and b.

Part of your PPE training should include:
   a. How to care for your PPE
   b. How to dispose of your PPE
   c. How to buy your PPE
   d. All of the above
   (e.) Both a. and b.

Employee Name: Dorsey D. Combs Date: 20 NOV. 06

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   (c) Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   (a) Ear, foot, eye/face and head protection
   b. Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   d. Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   (d) All of the above e. Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   (a) True b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   (a) True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   b. Your employer
   (c) You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   (a) You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   (c) Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   (a) You realize exactly what your PPE can and cannot do for you
   (b) You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   e. Both a. and b.

10. Part of your PPE training should include:
    a. How to care for your PPE
    b. How to dispose of your PPE
    c. How to buy your PPE
    (d) All of the above
    (e) Both a. and b.

Employee Name: [illegible]

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   c. Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   a. Ear, foot, eye/face and head protection
   b. Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   d. Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   d. All of the above
   e. Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   a. True
   b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   a. True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   c. Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   a. You realize exactly what your PPE can and cannot do for you
   b. You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   e. Both a. and b.

10. Part of your PPE training should include:
    a. How to care for your PPE
    b. How to dispose of your PPE
    c. How to buy your PPE
    d. All of the above
    e. Both a. and b.

Employee Name

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   c. Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   a. Ear, foot, eye/face and head protection
   b. Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   d. Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   d. All of the above
   e. Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   a. True
   b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   a. True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   c. Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   a. You realize exactly what your PPE can and cannot do for you
   b. You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   e. Both a. and b.

Part of your PPE training should include:
   a. How to care for your PPE
   b. How to dispose of your PPE
   c. How to buy your PPE
   d. All of the above
   e. Both a. and b.

Employee Name:

Questionnaire "Personal Protective Equipment" ppe.doc

. What does PPE stand for?
a. Personal Protective Evaluation
b. Protective Planning Evaluation
(c.) Personal Protective Equipment
d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
a. Ear, foot, eye/face and head protection
b. Eye/Face, head, hand and respiratory protection
c. Ear, foot, head and hand protection
(d.) Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
a. Safety spectacles and goggles
b. Safety spectacles and bump caps
c. Welding helmets and face shields
d. All of the above (e.) Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
(a.) True b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
(a.) True -the assessor may not be aware of hidden/intermittent hazards
b. False -the assessor needs to be objecting when inspecting a work area

. Who is responsible for selecting the proper PPE to be work in your designated work area?
a. You
(b.) Your employer
c. You and your employer
d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
a. You
(b.) Your employer
c. You and your employer
d. Anyone who enters your company

8. When using PPE it is important that you properly:
a. Put on, adjust and remove your PPE
(b.) Put on and adjust your PPE
c. Put on, adjust, remove and maintain your PPE
d. a. only

9. It is important to know your PPE's limitations because:
a. You realize exactly what your PPE can and cannot do for you
b. You always wear PPE that's appropriate to the situation
c. You will know what is the best price to pay for your PPE
d. All of the above
(e.) Both a. and b.

'art of your PPE training should include:
a. How to care for your PPE
b. How to dispose of your PPE
c. How to buy your PPE
d. All of the above
(e.) Both a. and b.

Employee Name: Charles F. Poston Date: 14NOV00

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   c. Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   a. Ear, foot, eye/face and head protection
   b. Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   d. Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   d. All of the above
   e. Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   a. True b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   a. True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   a. You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   c. Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   a. You realize exactly what your PPE can and cannot do for you
   b. You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   e. Both a. and b.

10. Part of your PPE training should include:
    a. How to care for your PPE
    b. How to dispose of your PPE
    c. How to buy your PPE
    d. All of the above
    e. Both a. and b.

Employ...

Questionnaire "Personal Protective Equipment" ppe.doc

1. What does PPE stand for?
   a. Personal Protective Evaluation
   b. Protective Planning Evaluation
   (c). Personal Protective Equipment
   d. None of the above

2. Which four types of PPE are covered by OSHA's new requirements?
   a. Ear, foot, eye/face and head protection
   (b) Eye/Face, head, hand and respiratory protection
   c. Ear, foot, head and hand protection
   d. Eye/face, head, hand and foot protection

3. Eye/face protection includes which of the following?
   a. Safety spectacles and goggles
   b. Safety spectacles and bump caps
   c. Welding helmets and face shields
   d. All of the above (e) Both a. and c.

4. During a hazard assessment, the employer will assess the workplace to determine what hazards are present.
   (a). True b. False

5. In a hazard assessment, it's a good idea to have someone familiar with the job help the assessor identify potential hazards.
   (a). True -the assessor may not be aware of hidden/intermittent hazards
   b. False -the assessor needs to be objecting when inspecting a work area

6. Who is responsible for selecting the proper PPE to be work in your designated work area?
   a. You
   (b). Your employer
   c. You and your employer
   d. A group of your co-workers appointed by management

7. Who is responsible for wearing the correct PPE in your designated work area?
   (a). You
   b. Your employer
   c. You and your employer
   d. Anyone who enters your company

8. When using PPE it is important that you properly:
   a. Put on, adjust and remove your PPE
   b. Put on and adjust your PPE
   (c) Put on, adjust, remove and maintain your PPE
   d. a. only

9. It is important to know your PPE's limitations because:
   a. You realize exactly what your PPE can and cannot do for you
   (b). You always wear PPE that's appropriate to the situation
   c. You will know what is the best price to pay for your PPE
   d. All of the above
   e. Both a. and b.

10. Part of your PPE training should include:
    a. How to care for your PPE
    b. How to dispose of your PPE
    c. How to buy your PPE
    (d) All of the above
    e. Both a. and b.

Employee

C

C

DEPARTMENT OF THE ARMY
DIRECTORATE OF PUBLIC WORKS
U.S. ARMY SIGNAL CENTER & FORT GORDON, GEORGIA 30905

AFTZH-FIC-FE 14 November 2000

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Acknowledge Receipt of Standing Operating Procedures (SOP)

1. This memorandum is to verify that the individuals listed below have received the Utilities Monitor And Controls System (UMCS) SOP for review and proofing.

2. The Individuals are required to sign and date next to their to verify receipt. The list is as follows:

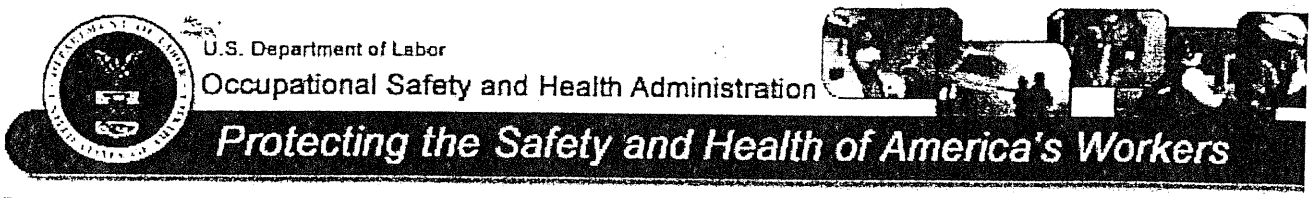
NAME	SIGNATURE	DATE
Brenda Reed	Brenda Reed	14 Nov 00
Reuben Fullbright	Reuben Fullbright	14 Nov 00
Gordon Griffin	Gordon Griffin	14 Nov 00
William Ellis	Bill Ellis	14 NOV 00
Charles Poston	Charles F. Poston	14 NOV 00
Neal Skvarca	Neal Skvarca	14 Nov 00
Dorsey Combs	Dorsey D. Combs	20 NOV. 00

3. For more information please contact the undersigned.

JAMES PAVLISCSAK
UMCS Manager
Facilities Engineering

DISTRIBUTION:
Brenda Reed
Reuben Fullbright
Gordon Griffin
William Ellis
Charles Poston
Neal Skvarca
Dorsey Combs

D



[Text Only]

Regulations (Standards - 29 CFR)
The control of hazardous energy (lockout/tagou
1910.147

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1910
• **Part Title:**	Occupational Safety and Health Standards
• **Subpart:**	J
• **Subpart Title:**	General Environmental Controls
• **Standard Number:**	1910.147
• **Title:**	The control of hazardous energy (lockout/tagou
• **Appendix:**	A

1910.147(a)

Scope, application and purpose -

1910.147(a)(1)

Scope

1910.147(a)(1)(i)

This standard covers the servicing and maintenance of machines and equipn the ***unexpected*** energization or start up of the machines or equipment, or stored energy could cause injury to employees. This standard establishes mi performance requirements for the control of such hazardous energy.

1910.147(a)(1)(ii)

This standard does not cover the following:

1910.147(a)(1)(ii)(A)

Construction, agriculture and maritime employment;

1910.147(a)(1)(ii)(B)

Installations under the exclusive control of electric utilities for the purpose o generation, transmission and distribution, including related equipment for communication or metering; and

1910.147(a)(1)(ii)(C)

Exposure to electrical hazards from work on, near, or with conductors or eq electric utilization installations, which is covered by Subpart S of this part; a

..1910.147(a)(1)(ii)(D)

1910.147(a)(1)(ii)(D)

Oil and gas well drilling and servicing.

1910.147(a)(2)

Application.

1910.147(a)(2)(i)

This standard applies to the control of energy during servicing and/or maint machines and equipment.

1910.147(a)(2)(ii)

Normal production operations are not covered by this standard (See Subpar Part). Servicing and/or maintenance which takes place during normal produ operations is covered by this standard only if:

1910.147(a)(2)(ii)(A)

An employee is required to remove or bypass a guard or other safety device

1910.147(a)(2)(ii)(B)

An employee is required to place any part of his or her body into an area on or piece of equipment where work is actually performed upon the material b processed (point of operation) or where an associated danger zone exists d machine operating cycle.

Note: ***Exception to paragraph (a)(2)(ii):*** Minor tool changes and adjustn other minor servicing activities, which take place during normal production c are not covered by this standard if they are routine, repetitive, and integral the equipment for production, provided that the work is performed using alt measures which provide effective protection (See Subpart O of this Part).

1910.147(a)(2)(iii)

This standard does not apply to the following:

..1910.147(a)(2)(iii)(A)

1910.147(a)(2)(iii)(A)

Work on cord and plug connected electric equipment for which exposure to t of unexpected energization or start up of the equipment is controlled by the of the equipment from the energy source and by the plug being under the e control of the employee performing the servicing or maintenance.

1910.147(a)(2)(iii)(B)

Hot tap operations involving transmission and distribution systems for subst as gas, steam, water or petroleum products when they are performed on pr pipelines, provided that the employer demonstrates that-

1910.147(a)(2)(iii)(B)(1)

continuity of service is essential;

1910.147(a)(2)(iii)(B)(2)

shutdown of the system is impractical; and

1910.147(a)(2)(iii)(B)(3)

documented procedures are followed, and special equipment is used which v proven effective protection for employees.

1910.147(a)(3)

Purpose.

1910.147(a)(3)(i)

This section requires employers to establish a program and utilize procedure appropriate lockout devices or tagout devices to energy isolating devices, ar otherwise disable machines or equipment to prevent unexpected energizatio or release of stored energy in order to prevent injury to employees.

1910.147(a)(3)(ii)

When other standards in this part require the use of lockout or tagout, they used and supplemented by the procedural and training requirements of this

1910.147(b)

Definitions applicable to this section.

Affected employee. An employee whose job requires him/her to operate o machine or equipment on which servicing or maintenance is being performe lockout or tagout, or whose job requires him/her to work in an area in which servicing or maintenance is being performed.

Authorized employee. A person who locks out or tags out machines or eq order to perform servicing or maintenance on that machine or equipment. A employee becomes an authorized employee when that employee's duties inc performing servicing or maintenance covered under this section.

Capable of being locked out. An energy isolating device is capable of beir if it has a hasp or other means of attachment to which, or through which, a affixed, or it has a locking mechanism built into it. Other energy isolating de capable of being locked out, if lockout can be achieved without the need to c rebuild, or replace the energy isolating device or permanently alter its energ capability.

Energized. Connected to an energy source or containing residual or stored

Energy isolating device. A mechanical device that physically prevents the or release of energy, including but not limited to the following: A manually o electrical circuit breaker; a disconnect switch; a manually operated switch b conductors of a circuit can be disconnected from all ungrounded supply conc in addition, no pole can be operated independently; a line valve; a block; an device used to block or isolate energy. Push buttons, selector switches and c circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance and services activitie involves welding on a piece of equipment (pipelines, vessels or tanks) under order to install connections or appurtenances. it is commonly used to replac sections of pipeline without the interruption of service for air, gas, water, ste petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, i accordance with an established procedure, ensuring that the energy isolatin the equipment being controlled cannot be operated until the lockout device i

Lockout device. A device that utilizes a positive means such as a lock, eith combination type, to hold an energy isolating device in the safe position and energizing of a machine or equipment. Included are blank flanges and bolte

Normal production operations. The utilization of a machine or equipment its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing setting up, adjusting, inspecting, modifying, and maintaining and/or servicin or equipment. These activities include lubrication, cleaning or unjamming of equipment and making adjustments or tool changes, where the employee m exposed to the ***unexpected*** energization or startup of the equipment or rel hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to per normal production operation.

Tagout. The placement of a tagout device on an energy isolating device, in with an established procedure, to indicate that the energy isolating device a equipment being controlled may not be operated until the tagout device is r

Tagout device. A prominent warning device, such as a tag and a means of which can be securely fastened to an energy isolating device in accordance v established procedure, to indicate that the energy isolating device and the e being controlled may not be operated until the tagout device is removed.

General -

1910.147(c)(1)

Energy control program. The employer shall establish a program consistir control procedures, employee training and periodic inspections to ensure tha employee performs any servicing or maintenance on a machine or equipmer unexpected energizing, startup or release of stored energy could occur and the machine or equipment shall be isolated from the energy source and renc inoperative.

1910.147(c)(2)

Lockout/tagout.

1910.147(c)(2)(i)

If an energy isolating device is not capable of being locked out, the employe control program under paragraph (c)(1) of this section shall utilize a tagout

1910.147(c)(2)(ii)

If an energy isolating device is capable of being locked out, the employer's e control program under paragraph (c)(1) of this section shall utilize lockout, employer can demonstrate that the utilization of a tagout system will provid employee protection as set forth in paragraph (c)(3) of this section.

1910.147(c)(2)(iii)

After January 2, 1990, whenever replacement or major repair, renovation o modification of a machine or equipment is performed, and whenever new m equipment are installed, energy isolating devices for such machine or equipr designed to accept a lockout device.

1910.147(c)(3)

Full employee protection.

1910.147(c)(3)(i)

When a tagout device is used on an energy isolating device which is capable locked out, the tagout device shall be attached at the same location that the device would have been attached, and the employer shall demonstrate that program will provide a level of safety equivalent to that obtained by using a program.

..1910.147(c)(3)(ii)

1910.147(c)(3)(ii)

In demonstrating that a level of safety is achieved in the tagout program wh equivalent to the level of safety obtained by using a lockout program, the er demonstrate full compliance with all tagout-related provisions of this standa with such additional elements as are necessary to provide the equivalent saf

from the use of a lockout device. Additional means to be considered as part demonstration of full employee protection shall include the implementation c safety measures such as the removal of an isolating circuit element, blockin controlling switch, opening of an extra disconnecting device, or the removal handle to reduce the likelihood of inadvertent energization.

1910.147(c)(4)

Energy control procedure.

1910.147(c)(4)(i)

Procedures shall be developed, documented and utilized for the control of pc hazardous energy when employees are engaged in the activities covered by

Note: ***Exception:*** The employer need not document the required procedure particular machine or equipment, when all of the following elements exist: (machine or equipment has no potential for stored or residual energy or reac of stored energy after shut down which could endanger employees; (2) the equipment has a single energy source which can be readily identified and isc the isolation and locking out of that energy source will completely deenergiz deactivate the machine or equipment; (4) the machine or equipment is isola that energy source and locked out during servicing or maintenance; (5) a si device will achieve a locker-out condition; (6) the lockout device is under th control of the authorized employee performing the servicing or maintenance servicing or maintenance does not create hazards for other employees; and employer, in utilizing this exception, has had no accidents involving the une activation or reenergization of the machine or equipment during servicing or maintenance.

1910.147(c)(4)(ii)

The procedures shall clearly and specifically outline the scope, purpose, aut rules, and techniques to be utilized for the control of hazardous energy, and to enforce compliance including, but not limited to, the following:

1910.147(c)(4)(ii)(A)

A specific statement of the intended use of the procedure;

1910.147(c)(4)(ii)(B)

Specific procedural steps for shutting down, isolating, blocking and securing equipment to control hazardous energy;

1910.147(c)(4)(ii)(C)

Specific procedural steps for the placement, removal and transfer of lockout tagout devices and the responsibility for them; and

..1910.147(c)(4)(ii)(D)

1910.147(c)(4)(ii)(D)

Specific requirements for testing a machine or equipment to determine and effectiveness of lockout devices, tagout devices, and other energy control m

1910.147(c)(5)

Protective materials and hardware.

1910.147(c)(5)(i)

Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners hardware shall be provided by the employer for isolating, securing or blockir machines or equipment from energy sources.

1910.147(c)(5)(ii)

Lockout devices and tagout devices shall be singularly identified; shall be th devices(s) used for controlling energy; shall not be used for other purposes; meet the following requirements:

1910.147(c)(5)(ii)(A)

Durable.

1910.147(c)(5)(ii)(A)(1)

Lockout and tagout devices shall be capable of withstanding the environmen they are exposed for the maximum period of time that exposure is expected

1910.147(c)(5)(ii)(A)(2)

Tagout devices shall be constructed and printed so that exposure to weathe or wet and damp locations will not cause the tag to deteriorate or the messa tag to become illegible.

1910.147(c)(5)(ii)(A)(3)

Tags shall not deteriorate when used in corrosive environments such as area acid and alkali chemicals are handled and stored.

..1910.147(c)(5)(ii)(B)

1910.147(c)(5)(ii)(B)

Standardized. Lockout and tagout devices shall be standardized within the least one of the following criteria: Color; shape; or size; and additionally, in tagout devices, print and format shall be standardized.

1910.147(c)(5)(ii)(C)

Substantial -

1910.147(c)(5)(ii)(C)(1)

Lockout devices. Lockout devices shall be substantial enough to prevent re without the use of excessive force or unusual techniques, such as with the u cutters or other metal cutting tools.

1910.147(c)(5)(ii)(C)(2)

Tagout devices. Tagout devices, including their means of attachment, shal substantial enough to prevent inadvertent or accidental removal. Tagout dev attachment means shall be of a non-reusable type, attachable by hand, self- non-releasable with a minimum unlocking strength of no less than 50 pound the general design and basic characteristics of being at least equivalent to a all environment-tolerant nylon cable tie.

1910.147(c)(5)(ii)(D)

Identifiable. Lockout devices and tagout devices shall indicate the identity employee applying the device(s).

1910.147(c)(5)(iii)

Tagout devices shall warn against hazardous conditions if the machine or eq energized and shall include a legend such as the following: ***Do Not Start. D Open. Do Not Close. Do Not Energize. Do Not Operate.***

..1910.147(c)(6)

1910.147(c)(6)

Periodic inspection.

1910.147(c)(6)(i)

The employer shall conduct a periodic inspection of the energy control proce annually to ensure that the procedure and the requirements of this standard followed.

1910.147(c)(6)(i)(A)

The periodic inspection shall be performed by an authorized employee other ones(s) utilizing the energy control procedure being inspected.

1910.147(c)(6)(i)(B)

The periodic inspection shall be conducted to correct any deviations or inade identified.

1910.147(c)(6)(i)(C)

Where lockout is used for energy control, the periodic inspection shall includ between the inspector and each authorized employee, of that employee's re under the energy control procedure being inspected.

1910.147(c)(6)(i)(D)

Where tagout is used for energy control, the periodic inspection shall include between the inspector and each authorized and affected employee, of that e responsibilities under the energy control procedure being inspected, and the set forth in paragraph (c)(7)(ii) of this section.

..1910.147(c)(6)(ii)

1910.147(c)(6)(ii)

The employer shall certify that the periodic inspections have been performe certification shall identify the machine or equipment on which the energy co procedure was being utilized, the date of the inspection, the employees incl inspection, and the person performing the inspection.

1910.147(c)(7)

Training and communication.

1910.147(c)(7)(i)

The employer shall provide training to ensure that the purpose and function energy control program are understood by employees and that the knowled required for the safe application, usage, and removal of the energy controls by employees. The training shall include the following:

1910.147(c)(7)(i)(A)

Each authorized employee shall receive training in the recognition of applica hazardous energy sources, the type and magnitude of the energy available i workplace, and the methods and means necessary for energy isolation and

1910.147(c)(7)(i)(B)

Each affected employee shall be instructed in the purpose and use of the en procedure.

1910.147(c)(7)(i)(C)

All other employees whose work operations are or may be in an area where control procedures may be utilized, shall be instructed about the procedure, the prohibition relating to attempts to restart or reenergize machines or equ which are locked out or tagged out.

1910.147(c)(7)(ii)

When tagout systems are used, employees shall also be trained in the follow limitations of tags:

..1910.147(c)(7)(ii)(A)

1910.147(c)(7)(ii)(A)

Tags are essentially warning devices affixed to energy isolating devices, and provide the physical restraint on those devices that is provided by a lock.

1910.147(c)(7)(ii)(B)

When a tag is attached to an energy isolating means, it is not to be remove authorization of the authorized person responsible for it, and it is never to b

ignored, or otherwise defeated.

1910.147(c)(7)(ii)(C)

Tags must be legible and understandable by all authorized employees, affec employees, and all other employees whose work operations are or may be i order to be effective.

1910.147(c)(7)(ii)(D)

Tags and their means of attachment must be made of materials which will w environmental conditions encountered in the workplace.

1910.147(c)(7)(ii)(E)

Tags may evoke a false sense of security, and their meaning needs to be un part of the overall energy control program.

1910.147(c)(7)(ii)(F)

Tags must be securely attached to energy isolating devices so that they can inadvertently or accidentally detached during use.

1910.147(c)(7)(iii)

Employee retraining.

..1910.147(c)(7)(iii)(A)

1910.147(c)(7)(iii)(A)

Retraining shall be provided for all authorized and affected employees when a change in their job assignments, a change in machines, equipment or proc present a new hazard, or when there is a change in the energy control proce

1910.147(c)(7)(iii)(B)

Additional retraining shall also be conducted whenever a periodic inspection paragraph (c)(6) of this section reveals, or whenever the employer has reas that there are deviations from or inadequacies in the employee's knowledge the energy control procedures.

1910.147(c)(7)(iii)(C)

The retraining shall reestablish employee proficiency and introduce new or r control methods and procedures, as necessary.

1910.147(c)(7)(iv)

The employer shall certify that employee training has been accomplished an kept up to date. The certification shall contain each employee's name and d training.

1910.147(c)(8)

Energy isolation. Lockout or tagout shall be performed only by the authori

employees who are performing the servicing or maintenance.

1910.147(c)(9)

Notification of employees. Affected employees shall be notified by the em authorized employee of the application and removal of lockout devices or ta Notification shall be given before the controls are applied, and after they are from the machine or equipment.

..1910.147(d)

1910.147(d)

Application of control. The established procedures for the application of e (the lockout or tagout procedures) shall cover the following elements and ac shall be done in the following sequence:

1910.147(d)(1)

Preparation for shutdown. Before an authorized or affected employee tur machine or equipment, the authorized employee shall have knowledge of th magnitude of the energy, the hazards of the energy to be controlled, and th means to control the energy.

1910.147(d)(2)

Machine or equipment shutdown. The machine or equipment shall be tu shut down using the procedures established for the machine or equipment. shutdown must be utilized to avoid any additional or increased hazard(s) to as a result of the equipment stoppage.

1910.147(d)(3)

Machine or equipment isolation. All energy isolating devices that are nee control the energy to the machine or equipment shall be physically located a in such a manner as to isolate the machine or equipment from the energy s

1910.147(d)(4)

Lockout or tagout device application.

1910.147(d)(4)(i)

Lockout or tagout devices shall be affixed to each energy isolating device by employees.

..1910.147(d)(4)(ii)

1910.147(d)(4)(ii)

Lockout devices, where used, shall be affixed in a manner to that will hold t isolating devices in a "safe" or "off" position.

1910.147(d)(4)(iii)

Tagout devices, where used, shall be affixed in such a manner as will clearly that the operation or movement of energy isolating devices from the "safe" position is prohibited.

1910.147(d)(4)(iii)(A)

Where tagout devices are used with energy isolating devices designed with t of being locked, the tag attachment shall be fastened at the same point at w would have been attached.

1910.147(d)(4)(iii)(B)

Where a tag cannot be affixed directly to the energy isolating device, the ta located as close as safely possible to the device, in a position that will be im obvious to anyone attempting to operate the device.

1910.147(d)(5)

Stored energy.

1910.147(d)(5)(i)

Following the application of lockout or tagout devices to energy isolating dev potentially hazardous stored or residual energy shall be relieved, disconnect restrained, and otherwise rendered safe.

..1910.147(d)(5)(ii)

1910.147(d)(5)(ii)

If there is a possibility of reaccumulation of stored energy to a hazardous le verification of isolation shall be continued until the servicing or maintenance completed, or until the possibility of such accumulation no longer exists.

1910.147(d)(6)

Verification of isolation. Prior to starting work on machines or equipment been locked out or tagged out, the authorized employee shall verify that iso deenergization of the machine or equipment have been accomplished.

1910.147(e)

Release from lockout or tagout. Before lockout or tagout devices are ren energy is restored to the machine or equipment, procedures shall be followe actions taken by the authorized employee(s) to ensure the following:

1910.147(e)(1)

The machine or equipment. The work area shall be inspected to ensure th nonessential items have been removed and to ensure that machine or equip components are operationally intact.

1910.147(e)(2)

Employees.

1910.147(e)(2)(i)

The work area shall be checked to ensure that all employees have been safe or removed.

1910.147(e)(2)(ii)

After lockout or tagout devices have been removed and before a machine or is started, affected employees shall be notified that the lockout or tagout de been removed.

1910.147(e)(3)

Lockout or tagout devices removal. Each lockout or tagout device shall b from each energy isolating device by the employee who applied the device. ***to paragraph (e)(3):*** When the authorized employee who applied the lock device is not available to remove it, that device may be removed under the the employer, provided that specific procedures and training for such remov developed, documented and incorporated into the employer's energy contro The employer shall demonstrate that the specific procedure provides equiva the removal of the device by the authorized employee who applied it. The sp procedure shall include at least the following elements:

1910.147(e)(3)(i)

Verification by the employer that the authorized employee who applied the c at the facility:

1910.147(e)(3)(ii)

Making all reasonable efforts to contact the authorized employee to inform h his/her lockout or tagout device has been removed; and

1910.147(e)(3)(iii)

Ensuring that the authorized employee has this knowledge before he/she re at that facility.

..1910.147(f)

1910.147(f)

Additional requirements.

1910.147(f)(1)

Testing or positioning of machines, equipment or components there situations in which lockout or tagout devices must be temporarily removed f energy isolating device and the machine or equipment energized to test or p machine, equipment or component thereof, the following sequence of action followed:

1910.147(f)(1)(i)

Clear the machine or equipment of tools and materials in accordance with pa (1) of this section;

1910.147(f)(1)(ii)

Remove employees from the machine or equipment area in accordance with (e)(2) of this section;

1910.147(f)(1)(iii)

Remove the lockout or tagout devices as specified in paragraph (e)(3) of thi

1910.147(f)(1)(iv)

Energize and proceed with testing or positioning;

1910.147(f)(1)(v)

Deenergize all systems and reapply energy control measures in accordance paragraph (d) of this section to continue the servicing and/or maintenance.

1910.147(f)(2)

Outside personnel (contractors, etc.).

1910.147(f)(2)(i)

Whenever outside servicing personnel are to be engaged in activities covere scope and application of this standard, the on-site employer and the outside shall inform each other of their respective lockout or tagout procedures.

..1910.147(f)(2)(ii)

1910.147(f)(2)(ii)

The on-site employer shall ensure that his/her employees understand and c the restrictions and prohibitions of the outside employer's energy control pr

1910.147(f)(3)

Group lockout or tagout.

1910.147(f)(3)(i)

When servicing and/or maintenance is performed by a crew, craft, departme group, they shall utilize a procedure which affords the employees a level of p equivalent to that provided by the implementation of a personal lockout or t device.

1910.147(f)(3)(ii)

Group lockout or tagout devices shall be used in accordance with the proced required by paragraph (c)(4) of this section including, but not necessarily lin following specific requirements:

1910.147(f)(3)(ii)(A)

Primary responsibility is vested in an authorized employee for a set number employees working under the protection of a group lockout or tagout device operations lock);

1910.147(f)(3)(ii)(B)

Provision for the authorized employee to ascertain the exposure status of in group members with regard to the lockout or tagout of the machine or equi

1910.147(f)(3)(ii)(C)

When more than one crew, craft, department, etc. is involved, assignment c associated lockout or tagout control responsibility to an authorized employe to coordinate affected work forces and ensure continuity of protection; and

..1910.147(f)(3)(ii)(D)

1910.147(f)(3)(ii)(D)

Each authorized employee shall affix a personal lockout or tagout device to t lockout device, group lockbox, or comparable mechanism when he or she be and shall remove those devices when he or she stops working on the machi equipment being serviced or maintained.

1910.147(f)(4)

Shift or personnel changes. Specific procedures shall be utilized during sh personnel changes to ensure the continuity of lockout or tagout protection, i provision for the orderly transfer of lockout or tagout device protection betw going and oncoming employees, to minimize exposure to hazards from the u energization or start-up of the machine or equipment, or the release of stor

Note: The following appendix to §1910.147 services as a non-mandatory gu assist employers and employees in complying with the requirements of this well as to provide other helpful information. Nothing in the appendix adds to from any of the requirements of this section.

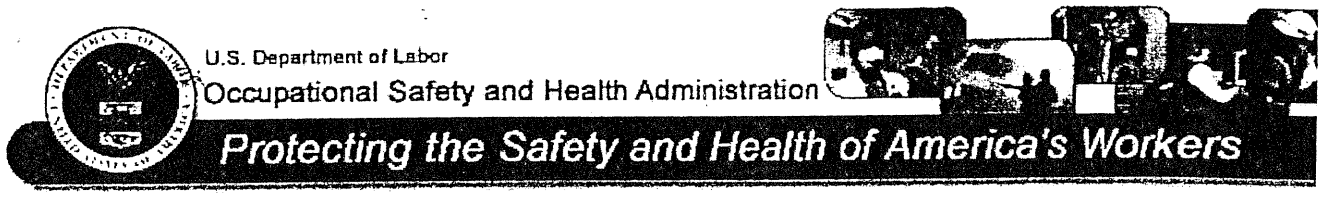
[54 FR 36687, Sept. 1, 1989, as amended at 54 FR 42498, Oct. 17, 1989; 5 38686, Sept. 20, 1990; 61 FR 5507, Feb. 13, 1996]

Next Standard (1910.147 App A)

Regulations (Standards - 29 CFR) - Table of Contents

Total time elapsed: .08 sec interval time: .08 sec

E



[Text Only]

Standard Interpretations 02/28/2000 - Removal of lockout devices by per other than those who applied them.

Standard Interpretations - Table of Contents

• **Standard Number:** 1910.147(e)(3)

February 28, 2000

Ms. Gretchen R. Busch
Project Manager
The Resource Effectiveness Development Group
P.O. Box 247
Reynoldsburg, OH 43068

Dear Ms. Busch:

Thank you for your July 10, 1999 letter to the Occupational Safety and Health Ad (OSHA?s) Directorate of Compliance Programs regarding 29 CFR §1910.147 ***The Hazardous Energy (lockout/tagout)***. Your scenario, question, and our reply f

Scenario: Recently, one of my customers requested a written lockout/tagout prc ran across some interpretations that I found both insightful and helpful. However interpretation that has raised some questions. The interpretation that I am referr July 28, 1995 from John B. Miles to Ms. Vicki Chouinard of Honeywell, Inc.

The specific question is in regard to using a master key on a lock when an author employee is not on site. The interpretation states that a master key is not accept bolt cutter [or equivalent means resulting in the destruction of the lock] must be remove the lock. After reviewing the 29 CFR 1910.147(e)(3) reference, I do not : mention of the use of a master key as being unacceptable, nor conversely, the us cutters acceptable.

What I have found is that the regulation clearly states that the employer of the a employee may remove a lockout device as long as a documented procedure is fol procedure, at a minimum, must include: (1) verification by the employer that the employee [who applied the device] is not on site; (2) [all] reasonable efforts to c

authorized employee to inform him or her that the lock has been removed; and (employee is definitely informed of the removal of the lock upon his or her return

Question: Based on the above information and a very specific written procedure possible that an employer does have an alternative to bolt cutters as a way to rei devices?

Reply: Bolt cutters, or other device-destructive methods, are not the only permis by which to remove a lockout device, if the employer can demonstrate that the s| alternative procedure, which the employer follows prior to removing the device, p degree of safety that is equivalent to the removal of the device by the authorized who first affixed it.(1) The use of a master key to remove a lockout device would b equivalent (to the removal of the lock by the person who applied it) only if it is p(under the employer?s direction and in accordance with the requirements establis| 1910.147(e)(3).

Obviously, the "one person, one lock, one key" practice is the preferred means a| across industry lines, but it is not the only method to meet the language of the st However, prior to the use of the master key method, specific procedures and trai the §1910.147(e)(3) exception, must be developed, documented, and incorporat energy control program. Among the features essential to a compliant master key a reliable method to ensure that access to the master key will be carefully contro employer such that only those persons authorized and trained to use the master accordance with the employer?s program can gain access.

Safety is ensured not through the use of a specific removal device, be it a maste| cutter; rather, it lies in effective procedures, careful training, and procedures des ensure accountability. The success of any employer?s energy control program, in lockout or tagout device removal actions, depends upon ensuring that its employ established, effective procedures, thereby respecting the sanctity of another emp lockout or tagout device.

Thank you for your interest in occupational safety and health. We hope this provi clarification you were seeking and apologize for any confusion the earlier docume caused. The interpretation in this letter supersedes the July 28, 1995 Honeywell, which is hereby rescinded. As this letter demonstrates, OSHA?s re-examination o may result in the clarification or correction of previously stated enforcement guid future, should you wish to verify that the guidance herein remains current or acc referenced information, you may consult OSHA?s website at http://www.osha.go any further questions, please feel free to contact the Office of General Industry C Assistance at (202) 693-1850.

Sincerely,

Richard E. Fairfax, Director
Directorate of Compliance Programs

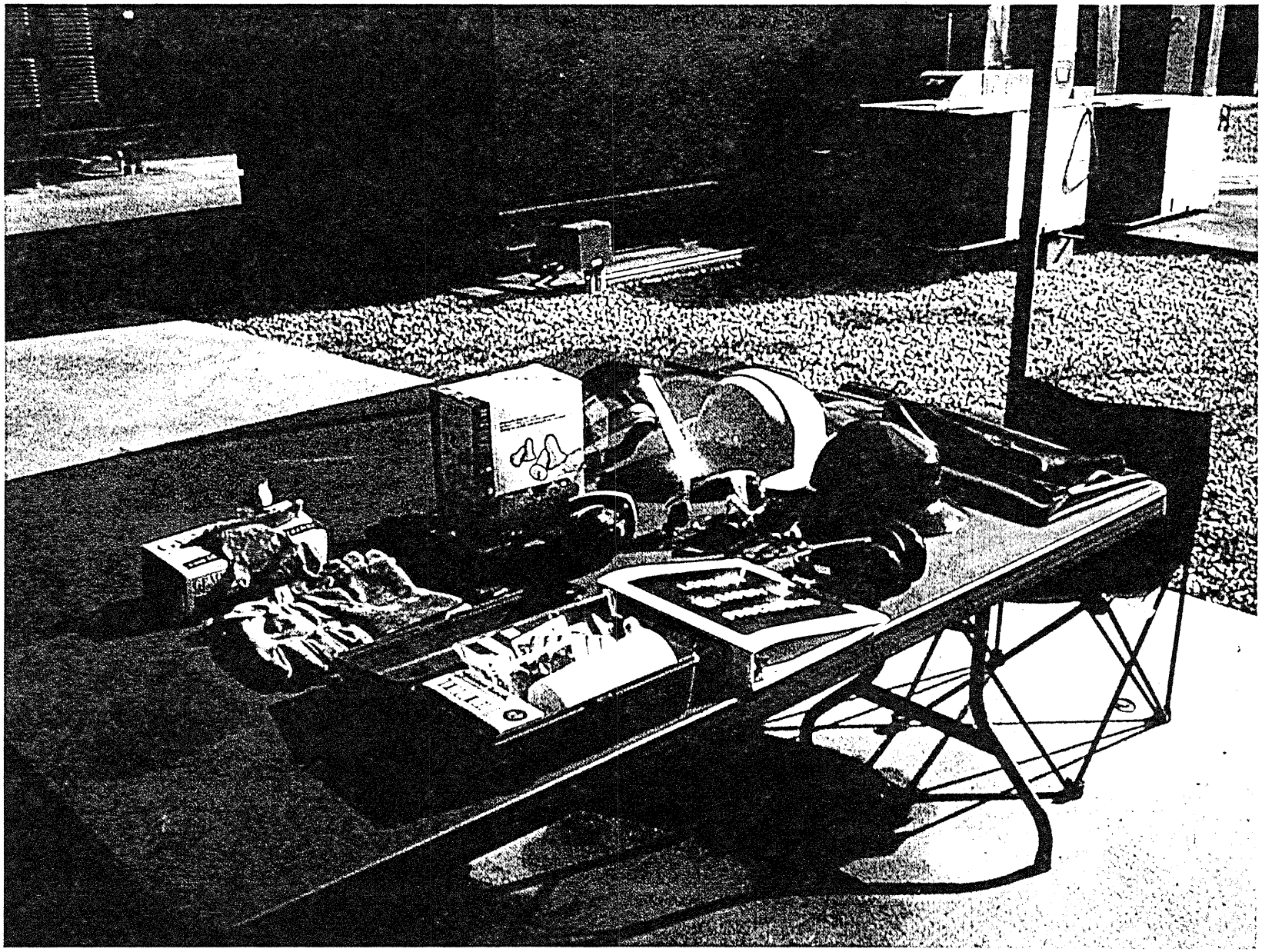
FOOTNOTE (1) While your question does not specifically address tagout devices aware that the destructive removal of the tagout device is required by the standa is no equivalent "master key" concept for tagout devices. Tagout device attachme must be of the non-reusable and non-releasable type. [See subsection 1910.147((2).] The standard mandates non-reusable tagout devices in order to adequately authorized employee who affixes the tagout device and to prevent other employe removing the tagout device in a way that is not permitted. (Back to text)

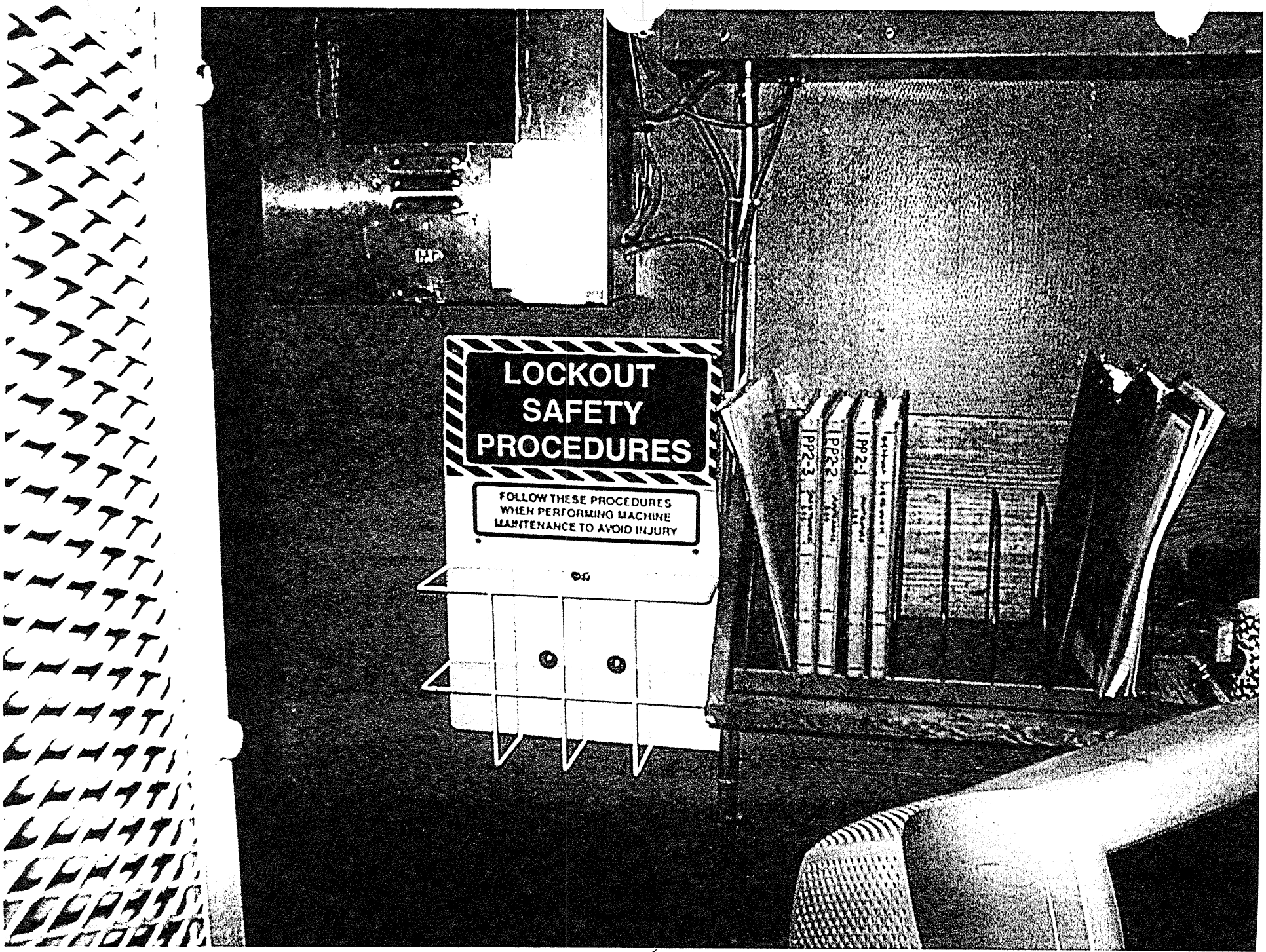
Standard Interpretations - Table of Contents

Total time elapsed: .07 sec interval time: .07 sec

F

LOCKOUT
SAFETY
PROCEDURES





Binder shown in photo of Equipment Layout

G

U.S. Department of Labor
Occupational Safety and Health Administration
Building 7 - Suite 110
LaVista Perimeter Office Park
Tucker, GA 30084
Phone: (770)493-6644 FAX: (770)493-7725

COPY

Notice of Unsafe or Unhealthful Working Conditions

To:
US ARMY FORT GORDON, GA
DA, HQS. US ARMY GARRISION US ARMY SIGNAL CENTER
FORT GORDON, GA 30905-5000

Inspection Site:
UMCS BLDG. 14600 and Power Plant 25910
Fort Gordon, GA 30905-5000

Inspection Number: 303381974
Inspection Date(s): 09/19/2000-09/20/2000
Issuance Date: 10/13/2000

The violation(s) described in this Notice is (are) alleged to have occurred on or about the day(s) the inspection was made unless otherwise indicated within the description given below.

This Notice of Unsafe or Unhealthful Working Conditions (Notice) describes violations of the Occupational Safety and Health Act of 1970, the Executive Order 12196, and 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters. You must abate the violations referred to in this Notice by the dates listed unless within 15 working days (excluding weekends and Federal holidays) from your receipt of this Notice you request an Informal Conference with the U.S. Department of Labor Area Office at the address shown above.

Posting - The law requires that a copy of this Notice be posted immediately in a prominent place at or near the location of the violation(s) cited herein, or, if it is not practicable because of the nature of the employer's operations, where it will be readily observable by all affected employees. This Notice must remain posted until the violation(s) cited herein has (have) been abated, or for 3 working days (excluding weekends and Federal holidays), whichever is longer.

Notification of Corrective Action - For <u>each</u> violation which you do not contest, you are required by 29 CFR 1903.19 to submit an Abatement Certification to the Area Director of the OSHA office issuing the citation and identified above. The certification <u>must</u> be sent by you within <u>10 calendar days</u> of the abatement date indicated on the citation. For **Willful** and **Repeat** violations, documents (examples: photos, copies of receipts, training records, etc.) demonstrating that abatement is complete must accompany the certification. Where the citation is classified as **Serious** and the citations states that the abatement documentation is required, documents such as those described above are required to be submitted along with the abatement certificate. If the citation indicates that the violation was corrected during the inspection, no abatement certification is required for that item.

All abatement verification documents must contain the following information: 1) Your name and address; 2) the inspection number (found on front page); 3) the citation and the citation items number(s) to which the submission relates; 4) a statement that the information is accurate; 5) the signature of the employer or employer's authorized representative; 6) the date the hazard was corrected; 7) a brief statement of how the hazard was corrected; and 8) a statement that affected employees and their representatives have been informed of the abatement.

The law also requires a copy of all abatement verification documents, required by 29 CFR 1903.19 to be sent to OSHA, also be posted at the location where the violation appeared and the corrective action took place.

You should be aware that OSHA publishes information on its inspection and citation activity on the Internet under the provisions of the Electronic Freedom of Information Act. The information related to your inspection will be available 30 calendar days after the Citation Issuance Date. You are encouraged to review the information concerning your establishment at WWW.OSHA.GOV. If you have any dispute with the accuracy of the information displayed, please contact this office.

Employer Discrimination Unlawful - The law prohibits discrimination by any person against an employee for filing a complaint or for exercising any rights under this Act. An employee who believes that he/she has been discriminated against may file a complaint with the U.S. Department of Labor Area Office at the address shown above.

Informal Conference - An informal conference is not required. However, if you wish to have such a conference you may request one with the Area Director within 15 working days after receipt of this Notice. As soon as the time, date, and place of the informal conference have been determined please complete the enclosed "Notice to Employees" and post it where the Notice is posted. During such an informal conference you may present any evidence or views which you believe would support an adjustment to the Notice. In addition, bring to the conference any and all supporting documentation of existing conditions as well as any abatement steps taken thus far.

NOTICE TO EMPLOYEES

An informal conference has been scheduled with the Occupational Safety and Health Administration (OSHA) to discuss the Notice of Unsafe or Unhealthful Working Conditions (Notice) issued on 10/13/2000. The conference will be held at the OSHA office located at Building 7 - Suite 110, LaVista Perimeter Office Park, Tucker, GA, 30084 on _____ at _____. Employees and/or representatives of employees have a right to attend an informal conference.

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

The alleged violations below have been grouped because they involve similar or related hazards that may increase the potential for injury resulting from an accident.

Citation 1 Item 1a Type of Violation: Serious

29 CFR 1910.132(a): Protective equipment was not used when necessary whenever hazards capable of causing injury and impairment were encountered:

a) Personal protective equipment to prevent employee exposure to hazards capable of causing bodily injury and impairment, such as oil products, battery acids, antifreeze and unexpected electrical energy sources, had not been provided to employees.

Date By Which Violation Must be Abated: 12/01/2000

Citation 1 Item 1b Type of Violation: Serious

29 CFR 1910.132(d)(1): The employer did not assess the workplace to determine if hazards are present, or likely to be present, which necessitate the use of personal protective equipment (PPE).

a) The employer has not conducted a hazard assessement of USMC Bldg. # 14600 and Power plant # 25910.

Date By Which Violation Must be Abated: 12/01/2000

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

Citation 1 Item 1c Type of Violation: Serious

29 CFR 1910.132(f)(1): The employer did not provide training to each employee who is required by this section to use personal protective equipment (PPE) as described in 1910.132(f)(1)(i) through (v):

a) The employer has not provided training to all employees that were required to wear personal protective equipment when performing their assigned work assignments. The employees had been exposed to potential bodily contamination from motor oil, battery acids, and antifreeze products when PPE and employee training had not been provided to UMCS Bldg. # 14600 and Power Plant # 25910 employees.

Date By Which Violation Must be Abated: 12/01/2000

The alleged violations below have been grouped because they involve similar or related hazards that may increase the potential for injury resulting from an accident.

Citation 1 Item 2a Type of Violation: Serious

29 CFR 1910.147(c)(1): The employer did not establish a program consisting of an energy control procedure and employee training to ensure that before any employee performed any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment would be isolated, and rendered inoperative in accordance with 29 CFR 1910.147(c)(4):

a) For all authorized, affected employees who were exposed to illness and/or injury from the energizing, start up or release of stored energy from electrical equipment in UMCS Bldg. # 14600, and at the Power Plant # 25910 electrical generator site.

Date By Which Violation Must be Abated: 12/01/2000

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

Citation 1 Item 2b Type of Violation: Serious

29 CFR 1910.147(c)(7)(i)(A): Each authorized employee did not receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control:

a) UMCS Bldg. # 14600 and Power Plant # 25910 authorized employees who perform service and maintenance on electrical equipment and electrical generators had not received training on the employer's lockout procedures.

Date By Which Violation Must be Abated: 12/01/2000

R. G. FINNEY
Area Director

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON
U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5000

REPLY TO
ATTENTION OF:

Signal Safety Division

Mr. R.G. Finney
Occupational Safety and Health Administration
LaVista Perimeter Office Park
Building 7, Suite 110
2183 Northlake Parkway
Tucker, Georgia 30084

Dear Mr. Finney:

The following corrective actions have been taken to abate Notice of Unsafe or Unhealthful Working Condition citations issued as a result of your inspection on September 19 – 20, 2000, number 303381974.

Citation 1 Item 1a: Type of Violation: Serious

29 CFR 1910.132(a): Protective equipment was not used when necessary whenever hazards capable of causing injury and impairment were encountered.

Personal protective equipment (PPE) to prevent employee exposure to hazards capable of causing bodily injury and impairment, such as oil products, battery acids, antifreeze and unexpected electrical energy sources, had not been provided to employees.

Corrective actions: It is a practice of this organization to provide PPE specific to hazards based on actual workplace assessments. All employees have PPE available to them at both the maintenance shop, building 14600, and the generator site. Safety and health inspections are routinely performed to identify workplace hazards and the controls required, including PPE. The Signal Safety Division, Directorate of Public Safety and the Industrial Hygiene Section, Dwight David Eisenhower Army Medical Center completed the last safety and health inspection dated March 6, 2000. Additional inspections are performed based on special request from the supervisor and employees. The type of PPE provided to UMCS personnel is based on input from UMCS personnel, supervisors, job descriptions, and guidance from local safety and health professionals. Management conducts periodic inspection of job sites and enforces use of PPE. Corrective actions are taken when employees are found in violation. A list of this equipment is attached.

Citation 1 Item 1b: Type of Violation: Serious

29 CFR 1910.132(d)(1): The employer did not assess the workplace to determine if hazards are present, or likely to be present, which necessitate the use of personal protective equipment.

The employer has not conducted a hazard assessment of UMCS building #14600 and Power Plant #25910.

Corrective actions: Hazard assessments are routinely conducted at UMCS worksites in building 14600 and at the generator plant. The latest evaluation of the job sites was conducted jointly by safety and industrial hygiene on March 6, 2000. Additional evaluations on Risk Assessment was conducted on August 7, 2000 and a Noise Hazards assessment on October 4, 2000. See attached hazard assessments conducted by safety and health agencies.

Citation 1 Item 1c Type of Violation: Serious

29 CFR 1910.132(f)(1): The employer did not provide training to each employee who is required by this section to use personal protective equipment (PPE) as described in 1910.132(f)(1)(i) through (v):

The employer has not provided training to all employees that were required to wear personal protective equipment when performing their assigned work assignment. The employees had been exposed to potential bodily contamination from motor oil, battery acids, and antifreeze products when PPE and employee training had not been provided to UMCS building #14600 and Power Plant #25910 employees.

Corrective actions: PPE training/certification was completed for all UMCS employees on November 14 & 20, 2000 who are required to wear or use any type of personal protective equipment. Industrial Hygiene Section, DDEAMC, provided PPE training. UMCS personnel reviewed a 17-minute training video on "PPE and Hazard Assessment." Employees participated in a question and answer session after viewing the video and completed a certification questionnaire and sign-in log that measured their increased awareness of PPE use and limitations. The PPE training was validated by the supervisor's signature. See attached PPE Training Certification Roster and Questionnaire.

Citation 1 Item 2a Type of Violation: Serious

29 CFR 1910.147(c)(1): The employer did not establish a program consisting of an energy control procedure and employee training to ensure that before any employee performed any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment would be isolated, and rendered inoperative in accordance with 29 CFR 1910.147(c)(4):

For all authorized, affected employees who were exposed to illness and/or injury from the energizing, start up or release of stored energy from electrical equipment in UMCS building #14600 and the Power Plant #25910 electrical generator site.

Corrective actions: A detailed Standard Operating Procedures (SOP) has been drafted on Lockout/Tagout and furnished to each employee. Lockout/Tagout equipment, lock with key and ample supply of tags was previously provided to all employees. Training on the program was conducted to all UMCS employees on the Control of Hazardous Energy (lockout/tagout) on November 14 & 20, 2000. Instruction consisted of classroom and hands-on training. A roster of attendees and copy of the slide presentation are attached.

Citation 1 Item 2b Type of Violation: Serious

29 CFR 1910.147©(7)(i)(A): Each authorized employee did not receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control:

UMCS building #14600 and Power Plant #25910 authorized employees who perform service and maintenance on electrical equipment and electrical generators had not received training on the employer's lockout procedures.

Corrective actions: Employees received extensive training from the military's prime power section, commercial firms and receive continual instructions from knowledgeable employees and management. Training was conducted to all UMCS employees on the Control of Hazardous Energy (lockout/tagout) on November 14 & 20, 2000. Instruction consisted of classroom and hands-on training. Training certificates on each course, a roster of attendees and a copy of the slide presentations are attached.

All information provided is accurate. Affected employees and their representatives have been informed of corrective actions taken to abate these OSHA citations.

For additional information, please contact Mr. Russell Blandin, Safety and Occupational Health Specialist at (706) 791-7233.

Sincerely,

CHARLETTE I. ROMAN
Colonel, SC
Commanding

Attachments

PERSONAL PROTECTIVE EQUIPMENT

Aprons

Earmuffs

Earmuff with radio headsets

Earplugs

Face shields

Splash goggles

Gloves—leather, nitrile, rubber, vinyl

Industrial safety glasses with side shields

Industrial safety glasses (prescription lens) with side shields

Safety footwear

Protective coveralls when changing oil filters or crawling under buildings.

Insulating tools

Ground fault circuit interrupters (portable extension cord type)

Lockout combination hasp

Lockout padlocks

Tag out tags

OSHA ATTACHMENTS

1. Safety/Health Inspection 6 MAR 00
2. Risk Assessment 7 AUG 00
3. Noise Hazards Survey 4 OCT 00

4. Personal Protective Equipment (PPE)
   a. PPE Training Certification Roster
   b. List of Personal Protective Equipment (PPE)
   c. PPE Training Certification Questionnaire

5. Safe Clearances and Lockout/Tagout Standing Operating Procedures (SOP) **draft**
   a. Receipt of Lockout/Tagout SOP
   b. Lockout/Tagout SOP

6. Lockout/Tagout Training
   a. Class Attendance Roster
   b. Course Syllabus
   c. Instructor's Handbook
   d. Student Handout
   e. Course Final Exam
   f. Training Certificates
   g. Slide Presentation

7. Engine Systems, Inc. (ESI)
   a. ESI Training Table of Contents
   b. ESI Training Certificates

8. Hazardous Waste Satellite Accumulation Point Training

H

DEPARTMENT OF THE ARMY
3rd Plt. B Co. 249th Engineer Battalion
(PRIME POWER)
Ft. Benning, GA 31905

CECPW-MB-C

01 APRIL 1996

SUBJECT: After Action Report, Annual Generator Inspection, Ft. Gordon, GA.

PROJECT NUMBER: 96BP04

DATES OF VISIT: 17-29 March 1996

SUBMITTED BY: SSG Ladnier

PERSONS CONTACTED:

Mr. Curtis Ogelsby, DPW Energy Branch, 706-791-4243
Mr. Bob Calhoun, Johnson Controls World Services Inc. 706-787-4601
Mr. James Pavliscsak, Mech. Eng. Tech, Chief EMCS, DSN 780-6423
SSG Duane Smith, 52E, HHC 201st MI Battalion, DSN 780-7718
MSG Studebaker, Heavy Maintenance Team, Ft. Belvoir, DSN 656-3002
SFC Sweeney, Prime Power School, Ft. Belvoir, DSN 654-1508
SFC Gouth, Operators Training, Ft. Belvoir, DSN 656-3203
Mr. Mike Hunter, Loan Program Manager, DSN 654-1474

1.0 PURPOSE: This report is intended to document the findings and recommendations developed as a result of an Annual Generator Inspection of two 4.5MW EMD power plants currently leased to the Department of Public Works at Ft. Gordon, GA.

2.0 BACKGROUND: Two 4.5 MW EMD power plants were installed at Ft. Gordon in July 1995 by 2nd Plt, A Co. 249th Engineer Battalion. The units positioned on Ft. Gordon are currently operated and maintained by the DPW Energy Management Control Systems under the provisions of the Prime Power Loan Program.

3.0 PROJECT SCOPE:

3.1 Perform Annual Inspection on two 4.5 MW EMD power plants.

3.2 Perform a generator installation for use as backup power at Eisenhower Army Hospital.

3.3 Perform pre-site data gathering for future facility maintenance scheduled for April - May time frame.

4.0 DISCUSSION:

4.1 Coordination for this inspection was made telephonically with above listed personnel. The tools required to perform an EMD inspection are normally shipped with the plant. However, they are not at Ft. Gordon at this time. There has been a mix-up of some sort as to the items reported sent by Heavy Maintenance at Ft. Belvoir and what was received at Ft. Gordon (see lists attached as annex H). The required tools were obtained from the Prime Power Operator training and Heavy Maintenance platoon.

4.2 The inspection of the two EMD power plants was based on a copy of an EMD Annual Inspection checklist from US Army Prime Power Program Power Generation and Transmission System Assets (copy attached as annex A). The checklist provides a base of inspection both mechanically and electrically, with enough detail to provide a good overview of the general condition of the plant. The results should be maintained as a baseline for future inspections and if used properly may be useful in predicting future problems.

4.3 The overall condition of this plant is good. The personnel responsible for the operation and maintenance of the plant are doing an excellent job. Special recognition should be given to SSG Duane Smith, a 52E assigned to the 201st MI Battalion at Ft. Gordon, for the work he has done and the assistance he has provided to the EMCS. The findings and recommendations in section 5 focus only on the shortcomings of the inspection. These findings should not be misunderstood to reflect a negative impression of the maintenance program at this plant site.

4.4 A secondary mission was incorporated into this project for scheduling convenience. Scheduled maintenance of a 2.1 MW EMD generator at the hospital emergency generator plant necessitated the deployment of a 750 KW heavy weight Fermont generator from 3rd Plt at Ft. Benning as a backup to the hospitals emergency bus. The generator was inspected, tested, and packed, prior to the departure of the inspection team to Ft. Gordon. The unit was shipped out by SFC Mann and MSG Helphinstine on 20 March and arrived at Ft. Gordon on 21 March. The unit was downloaded under supervision of Prime Power personnel at Ft. Gordon for the above-mentioned Annual Inspection. The generator was connected to an existing air switch at the back corner of Bldg 310. Shore power was provided by Johnson Controls exterior electricians by connecting a 480 to 208 transformer to the 480 volt power source of an unused pump. (Note- the 208V is not the recommended shore power voltage for the heavy weight but it works) The automatic start signal was taken from the 2.1MW EMD control cabinet. The load cables from the 2.1MW EMD had to be removed from the circuit at the back of the buss cubicle in the generator room to isolate it from our generator. External fuel supply was provided by Johnson Controls personnel. The phasing was checked with a 600 volt phase sequence meter at the heavyweights PT fuses and in the building at the 480/208 transformer. The phasing is A-B-C on both. The phases were not marked at the air switch and had to be traced prior to connection. Final testing of phase sequence was performed by turning everything in the building off except one pump and starting the generator. The 750 KW generator was placed into automatic standby position on 25 March until 3 April. Johnson Controls personnel will disconnect the power cables and fuel lines when the 2.1 MW EMD is restored to standby status. Prime Power personnel will return to Ft. Gordon on 15 April to ship the generator back to Ft. Benning.

5.0 FINDINGS AND RECOMMENDATIONS:

5.1 GENERAL CONDITION AND APPEARANCE: The plants are in good condition. Fire and safety materials are present and maintained. Adequate cleaning supplies are on hand. Overall appearance of the units is excellent.

5.2 OPERATIONS:

5.2.1 Records and Reports:

a. There are no records of the plant installation and testing at the plant site.
Recommendation: Have A Co. 249th Engr. Bn provide a copy of the installation trip report and acceptance test results and maintain them at the plant for future reference.

b. Operators were trained by Prime Power personnel after completion of the plant installation in July 1995. There are no records at the plant of any training conducted.
Recommendation: Provide training records of operators present and future.

c. There are no operating procedures posted at the plant.
Recommendation: An SOP should be provided and should include operating procedures that cover any system peculiarities. It should include emergency procedures and phone numbers.

d. There are log books on hand for each plant and each unit. The entries in the log books are vague. The maintenance records on hand are being maintained well.
Recommendation: A standardized procedure for filling out log books should be incorporated into the above-mentioned SOP. It should include as a minimum; plant status, engine hours, KW hours, circuit breaker trips, engine starts and shutdowns.

e. Due to personnel shortages maintenance or operations are often performed with only one person in the plant.
Recommendation: For safety reasons a two-person crew should be present on the site any time work is being performed. This practice should be included in the SOP.

5.3 CONTROL SKIDS AND SWITCHGEAR:

5.3.1 Control Skid:

a. Battery maintenance is being performed monthly and records are being kept. There is, however, no pilot cell marked on each battery for weekly testing.
Recommendation: Mark the weakest cell of each battery with a white cap and check this cell (the pilot cell) weekly in addition to the monthly battery maintenance.

b. The ammeter on the battery charger in plant 1 is broken.
Recommendation: Replace the meter. Part # 8263858, FSN 6625-00-103-8116

c. The battery bank in plant #1 maintains a low specific gravity. The voltage is being maintained at the proper level and the batteries seem to have sufficient cranking power for normal operations.

Recommendation: Monitor closely.

5.3.2 Switchgear: The deficiencies noted in this section all appear to have been in place prior to the installation of this plant at Ft. Gordon. The installation trip report should be checked to verify these findings. These breakers should have been reconditioned prior to shipment. The breakers electrically, are in good condition but failure to correct the following deficiencies will result in future problems possibly of catastrophic proportions. (Also see circuit breaker test data sheets included as annex D.)

a. Plant # 1 Load tie breaker: B phase main stationary contact is pitted.
Recommendation: Monitor circuit breaker trips and check again next year.

b. Plant # 1, Unit # 1:

* Trip counter not operational due to missing spring.
* A phase puffer tube broke. Replacement made by SSG Smith.
* B phase puffer tube appears melted. Replacement made by SSG Smith.
* B phase stationary arcing contact ceramic is chipped.
* The contact stroke is out of mfr recommended tolerance but cannot be adjusted any further.

Recommendation: Replace trip counter spring and puffer tubes. Monitor breaker and retest in one year.

c. Plant # 1, Unit # 2:

* Trip counter not operational due to missing spring.
* A phase stationary arcing contact ceramic is broke. It was glued together as a temporary fix..
* C phase arc chute is cracked.
* C phase stationary arcing contact ceramic is broke.
* The data plate is missing from this breaker.

Recommendation: Replace trip counter spring and A phase contact ceramic. Monitor breaker and retest in one year.

d. Plant # 1, Unit # 3:

* Puffer tube manifold is broken at the hose connection. It has been glued back together as a temporary fix.

Recommendation: Replace manifold.

e. Plant # 2 Load tie breaker: Incorrect literature on hand for this breaker.
Recommendation: Acquire correct literature.

f. Plant # 2, Unit # 1:

* Circuit breaker trip counter missing spring, non-op.

* B and C phases bottom ceramic barrier plates cracked.
* B phase rear arc chute cover cracked at tilt pin.

Recommendation: Replace all cracked and missing parts.

g. Plant # 2, Unit # 2:

* A and B phase stationary arc contact ceramic is chipped.
* Trip counter spring is missing.
* B phase arc chute panel is cracked and broken at rear tilt pin.
* All rear phase barrier brackets are broken.
* A phase bottom ceramic barrier plate at entrance of arc chute is cracked.

Recommendation: Replace trip counter spring, B phase arc chute panel and A phase ceramic barrier plate. Repair or replace barrier brackets.

h. Plant # 2, Unit # 3:

* A phase stationary arcing contact ceramic is chipped.
* C phase puffer tube is broken. Replacement made by SSG Smith.
* A and C phase arc chutes are cracked.

Recommendation: Replace puffer tube with proper part. Monitor breaker and retest in one year.

5.4 MAIN GENERATOR:(See also annex D)

5.4.1 Plant # 2, Unit # 1: Out board upper brush is down to 1-1/4 inch. This is above the one inch minimum but is over one half inch shorter than the remaining three brushes.

Recommendation: Monitor brush closely. Replace complete set of four when length gets down to one inch. Part # 8283004, FSN 5977-00-816-1037

5.5 COOLING SYSTEMS:

5.5.1 The coolant in all units has a brown sludge floating on top. It is thick enough in some units to cloud the sight glass completely.

Recommendation: Flush and filter or replace coolant. Note: A work order is in for the correction of this fault.

5.5.2 Plant # 1, Unit # 1: Missing one fan drive belt.

Recommendation: Monitor condition of remaining belts. Replace as a set when condition warrants or convenient. Part # 8301757, FSN 3030-00-104-6474

5.5.3 Plant # 2, Unit # 2: Lube oil cooler has oil seepage at the top right corner.

Recommendation: Tighten and monitor or replace gasket. Part # 8212576, FSN 5330-00-855-9864

5.6 EXHAUST SYSTEM:

5.6.1 Damper remains open on all units during shutdown exposing unit to effects of weather.

Recommendation: Modify system to alleviate the problem. Maybe add an electric motor for opening or closing the damper that operates when unit is started or stopped. Another idea proposed is to extend the exhaust pipe through the roof and add a flapper similar to the Fermont exhaust system. This may be something for loan program personnel to investigate.

5.7 TURBOCHARGER:

5.7.1 Plant # 1, Unit # 1: ClassII leak at outlet pipe of auxiliary turbocharger filter.

Recommendation: Tighten and monitor. If still leaking, replace gasket. Part #8306502, FSN 5330-00-914-7036

5.7.2 Plant # 1, Unit # 3: Class III leak at circulating oil pump.

Recommendation: Rebuild pump. (Replace seals)Part # 8348870 and 8294131

5.7.3 Plant # 2, Unit # 3: Class I leak at oil circulating pump.

Recommendation: Monitor leak.

5.8 AIR FILTER SYSTEM:

5.8.1 The oil bath filters oil level were found low on all units. The level was corrected immediately by SSG Smith.

Recommendation: Maintain level of oil bath filters to prevent future problems.

5.9 FUEL SYSTEM:

5.9.1 The fuel pumps on the pumping units are not being utilized. The plant is provided fuel from the boiler plant adjacent to the plant site.

5.9.2 The fuel racks on units 1-1, 2-1, 2-2, and 2-3 were found out of adjustment. They appear to have been adjusted while the engine was cold. All fuel racks were adjusted after bringing the units to operating temperatures.

Recommendation: For future installations and inspections ensure personnel perform adjustments with the unit in the proper operating condition.

5.10 LUBE OIL SYSTEM:

5.10.1 Plant # 2, unit # 2: The unit is showing signs of oil back feeding through the prelube system causing excessive oil in the cylinder. The result is excess oil blown out when the unit is barred over. This problem will also hinder starting the unit if the need arises to crank without barring over. To remedy the excess oil the plant personnel are not running the soakback

system. SSG Smith has been working on this problem since the unit was installed. He has been in contact with loan program personnel, the heavy maintenance platoon, and Tooele personnel trying to solve the problem.

Recommendation: Continue working with Tooele personnel and involve heavy maintenance personnel, if necessary, to eliminate the leak.

5.10.2 Plant # 1, unit # 2: The pipe union at the "Y" strainer has a class II leak.
Recommendation: Tighten or remove, clean and replace the union.

5.10.3 Plant # 1, unit # 3: There is a class II leak at the scavaging pump.
Recommendation: Replace gasket. Part # 8029498

5.11 GOVERNOR PUMP AND DRIVE:

5.11.1 Plant # 1, unit # 1: Governor oil level too high.
Recommendation: Maintain oil at proper level. Excess oil may lead to leaks.

5.11.2 Plant # 2, unit # 2: Governor is leaking oil.
Recommendation: Replace seal. Part # 8149695

5.12 CRANKCASE:

5.12.1 Several cylinder liners were found with a slight rust scale near the bottom. This is an indication of water in the oil. There was no evidence of excessive water leaks and the problem is scattered throughout the plant. The plant is enrolled in the Army Oil Analysis Program. The last sample was taken March 1996 and the results are not back.

Recommendation: Check results of AOAP. If water is found present change the oil and investigate the cause. Pay particular attention to unit # 2-2.

5.12.2 Several piston cooling tubes were found out of alignment. The deficiencies were corrected on the spot.

Recommendation: None.

5.12.3 Plant # 2, unit # 1: Minor scoring at bottom of # 15 cylinder liner.
Recommendation: Monitor and recheck next inspection.

5.12.4 Plant # 2, unit # 3: Minor scoring at bottom of # 15 cylinder liner.
Recommendation: Monitor and recheck next inspection.

5.13 POWER ASSEMBLIES:

5.13.1 Plant # 1, unit # 1: Light scarring on piston # 16.
Recommendation: Monitor and recheck next inspection.

5.13.2 Plant # 2, unit # 2: Piston # 6 is showing excessive carbon buildup and light scoring.

Recommendation: Monitor and recheck next inspection.

5.14 UPPER DECK SECTIONS:

5.14.1 Several injectors were found out of timing throughout the plant. All deficiencies were corrected on the spot.

Recommendation: None.

5.14.2 Several cylinder head to piston clearance readings were out of tolerance. The manufacturer recommends no more than .005 inch difference between front and rear of each piston. See all clearances as part of annex C

Recommendation: Check again next inspection.

5.14.3 Firing pressures were taken on all units. See results in annex C.

5.15: PLANT MODIFICATIONS:

5.15.1: The EMCS personnel are interested in using the plant for backup power to certain critical loads on Ft. Gordon. They are in the process of moving certain feeders to an emergency buss that is now where the plant is tied in. This use would require the units to be maintained in an automatic standby mode.

Recommendation: Their system will require several modifications before this can be accomplished. An automatic transfer system will have to be installed. Prime Power loan program engineers may be able to assist with the details of this project.

5.15.2: EMCS personnel are concerned with the reliability of the battery start system. During the inspection the battery bank on plant # 2 only provided enough cranking for three starts. This may create a problem if the units fail to start the first time.

Recommendation: Have Prime Power loan program engineers investigate the possibility of a rectifier system large enough to be used in the lack of battery power. EMCS personnel have committed to providing a backup generator specifically for this purpose.

6.0 CONCLUSIONS:

6.1 The overall appearance and condition of this plant is excellent. The findings above reflect very minor problems for an inspection of this detail. With no trip report available from the installation there is no data for comparison and no record of the condition of the plant at the time of installation. The installation trip report should be located and maintained with follow up inspections. Use the data in each report to begin a historical log for this plant. Maintain all records for comparison by next inspection teams.

6.2 SSG Smith is doing an excellent job with the maintenance at this plant. The benefit of having a 52E available at this plant can't be over emphasized. The EMCS personnel are extremely

pleased with his performance and have expressed a desire to have a 52E slot allocated for their TDA. Investigate the possibilities of getting 52E positions at loan program asset sites. The benefit would far outweigh the expense.

6.3 Many tools required for the performance of inspections and maintenance on these units are missing. The tools should be either found or re-acquired before the next inspection.

7.0 ANNEXES:

ANNEX A	Annual Inspection checklist.
ANNEX B	Tests performed and tools required list.
ANNEX C	Engine data.
ANNEX D	Circuit breaker and generator test data sheets.
ANNEX E	Hazard analysis.
ANNEX F	Project tasker/control #.
ANNEX G	Man-hour report.
ANNEX H	EMD Tool shortages.

EDDIE LADNIER
SSG (P), USA
Project NCOIC

GERALD BOORTZ
CW3, USA
Power Station Technician

GWEN E. BAKER
CPT, EN
Commanding

I

2/19

DEPARTMENT OF THE ARMY
3RD PLT, B CO.
249 ENGINEER BN, PRIME POWER
FT BENNING, GA, 31905

CECPW-MB-D **12 FEB. 97**

SUBJECT: After Action Report, Annual Inspection (AI) 9MW EMD Plant, Ft. Gordon, GA

PROJECT NUMBER: 97BP014

DATES OF VISIT: 21 JAN - 13 FEB 97

SUBMITTED BY: SSG SCOTT

PERSONS CONTACTED:

Mr. Curtis Ogelsby, DPW Energy Branch, 706-787-4601
Mr. Bob Calhoun, Johnson Controls World Services Inc. 706-787-4601
Mr. James Pavliscsak, Mech. Eng. Tech, Chief EMCS, DSN 780-6423
SSG Duane Smith, 52E, HHC 201 st MI Battalion, (Plant) DSN 780-8379
Mr. Mike Hunter, Loan Program Manager, DSN 654-1474
SFC Sweeney, Heavy Maintenance Team, FT. Belvoir, DSN 656-3002
Mr. Patrick Wilson, Marine Systems Inc., Chesapeake, VA 757-543-3000

1.0 PURPOSE: This report is intended to document the findings and Recommendations developed from the Annual Inspection (AI) of two 4.5 MW EMD power plants currently leased to the Department of Public Works (DPW) at Ft. Gordon, GA. It also documents EMD Refresher training and installation of a turbocharger on Power Plant #2 unit #2 (PP2-2).

2.0 BACKGROUND: Two 4.5 EMD power plants were installed at Ft. Gordon in July 1995 by 2nd Plt, A Co. 249th Engineer Battalion (EN BN). In March of 1996 3rd Plt, B Co. 249th EN BN completed the first AI. The units positioned on Ft. Gordon are currently operated and maintained by the DPW Energy Management Control Systems (EMCS) under the provisions of the Prime Power Loan Program. SSG Smith, 52E assigned to the 201st MI Battalion, is the maintenance NCO for the Plant and currently works at the plant three days a week. SSG Smith coordinates all scheduled and non-scheduled maintenance with EMCS.

3.0 PROJECT SCOPE:

3.1 Perform AI on two 4.5 MW EMD power plants. Time allotted 10 days.

3.2 Preform EMD Refresher Training. Time allotted six days.

3.3 Turbocharger removal and installation on generator number PP2-2. Time allotted four days.

4.0 DISCUSSION:

4.1 Coordination for the inspection was made telephonically with above listed personnel. The special tools required to perform tests on the EMD prime mover are normally with the plant. However, they are not at Ft. Gordon and this was identified and annotated in the last AI (March 96) After Action Report (AAR). The tools required for the generator and the control van are generic to the platoon. The special tools required for the prime mover were obtained from Heavy Maintenance platoon and Marine Systems Inc.

4.2 The inspection of the two EMD plants was based on a copy of an EMD AI checklist from the US Army Prime Power Program, Power Generation and Transmission System Assets (copy attached as annex A). This was the checklist used in last year's AI and was adhered to this year. The checklist provides a good overview of the general condition of the power plant. The results from last year's AI were used as a baseline for this years inspection and should continue to be maintained as a baseline for future inspections.

4.3 The condition of the plant is good. SSG Smith acts as a liaison between EMCS and the loan program. He is doing an excellent job in ensuring that the required maintenance is done and that the EMCS personnel have been properly trained. It should be noted that the successful operation and maintenance of the plant at Ft. Gordon are in large part due to SSG Smith, he has ensured that all the required standards for successful operations are being met. The EMCS personnel responsible for the operation and maintenance of the plant are doing an excellent job.

4.4 Special emphasis was placed, from the onset of this mission, to ensure that all the soldiers were cross trained in the Additional Skill Identifiers (ASI). This was accomplished by conducting training the week before deployment. The training consisted of class room instruction at Ft. Benning with hands on training at Ft. Gordon. This worked well but it must be noted that cross training increases the time required to complete the AI. The cross training at platoon level increased the mission readiness of the soldiers.

4.5 There were discrepancies found in the control vans on relay time dial and Indicating contactor tap settings. All settings were changed IAW TM 5-6115-456-15 page 89 FO 44. For more information, see the relay test sheet in Annex C.

4.6 The initial polarization index on all the generators indicated that there was moisture in the windings . After loading the PP1 for three hours the readings came within tolerance . Time and weather conditions did not allow for retesting of PP2.

4.7 Two secondary missions were incorporated into this project for scheduling convenience. They were EMD Refresher Training/Recertification and the installation of a turbocharger on PP2-2.

4.7 EMD Refresher Training was conducted in the third week. The materials used for the training were obtained from the Prime Power Production Specialist Course at Ft. Belvoir, VA. The training schedule and the criteria sheets used for this training are in Annex E. SSG Thomason and SSG Smith were the primary instructors. SSG Thomason had attended the EMD Refresher Training at Ft. Belvoir in 1996 and SSG Smith was well versed in peculiarities of these plants. The refresher training with the AI worked well and should be incorporated in the future AI. It is also suggested that the training be conducted after the bulk of the AI is completed.
The turbocharger (turbo) fault on PP2-2 was diagnosed before the AI. The fault identified was that the seals, internal to the turbo, were defective causing a continuous prelude condition while the soakback pump was on. This resulted in the cylinders filling with oil. During the initial barr over of the unit, oil was ejected into the prime mover compartment, which required extensive clean up after each start of the unit. It also caused the air box to accumulate excessive oil. The turbo seals fault was caused by a 30 psi check valve failure which blew the seals, internal to the turbo. It is believed that the fault identified above was present at the time of plant installation. The failure of the check valve presumably caused the eventual failure of the turbo seals . Mr. Mike Hunter , Loan program manager, shipped the turbo from Ft. Belvoir . It was received during the week of EMD refresher training and scheduled for installation the following week. A 9 ton boom truck was required for removal and installation of the turbo. The requirements for the lifting device was that it have sufficient reach and swing. The turbo installation took approximately four, 12 hour days. The other special tools required were jack screws which were fabricated on site. It was also noted during the AI that excessive noise was coming from this turbo. Upon completion on the turbo installation the plant was brought on line and 4.5 MW of load assumed. The plant was run for 3 hours under a full load. The replacement of the turbo solved the above identified problems.

5.0 FINDINGS AND RECOMMENDATIONS:

5.1 The findings discussed in this section are deficiencies that require immediate attention. Additional findings by unit are listed in Annex C.

5.2 The general condition and appearance of the plants are good. Fire and safety materials are present and maintained. Adequate cleaning supplies are on hand. Over all appearance of the units is excellent.

5.3 The SOP for the plants is vague and is hard to understand. It is recommended that a more precise SOP covering all aspects of plant operation and maintenance be written. It is also noted that the operators should be certified by Prime Power Cadre.

5.4 All the lubricating oil circulating pumps (soakback pumps) in the units leak. It is recommended that all the soakback pumps be replaced. An attempt to rebuild the soakback pump was made on PP-3 by installing a new seal kit. The pump continued to leak. TM 5-6115-456-15 page 3-69, item 16, under "Unit Exchange" states that " immersion heater pump and motor" should be replaced every two years. The spider coupling should also be replaced when the pump

5.4 is replaced.

5.5 There is a class II oil leak on PP-3 around the soak back filter (in board filter closest to fan). This leak was identified in the last AI. The location of the leak could not be located at this time. It is recommended that the filter bank be removed if necessary to locate the leak.

5.7 It is recommended that the special tools required for AI of the prime mover on the EMD be maintained at company level (see annex b).

5.8 The engine hours meters in all the units need to be checked for accuracy. The actual readings do not correspond with actual hours operated.

6.0 CONCLUSIONS:

6.1 The overall appearance and condition of these plants is excellent. The above findings reflect very minor problems for an inspection of this detail. The data from last year's AI was used as a historical log for comparison. This data should be maintained at the plant and at platoon level. To ensure the same quality of the maintenance in the future it is recommended that a 52E position be continued at Ft. Gordon.

ANNEXES

ANNEX A	List of Personnel assigned
ANNEX B	Test performed and tools required list.
ANNEX C	Test data inspection sheets.
ANNEX D	Hazard analysis
ANNEX E	EMD Refresher Training schedules and criterion sheets
ANNEX F	Project tasker/control #
ANNEX G	Man-hour and Cost comparison Report

Review
Gerald L. Boortz
USA, CW3
2efvPower Station Commander

DAVID J. SCOTT
USA, SSG
NCOIC

Timothy M Kelley
Major EN
Commanding

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-1

POI FILE TITLE: Introduction

SCOPE: Introduction to the MP-36A powerplant, configuration, nomenclature of components, and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant, configuration, nomenclature of components, and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Know the requirements for completing the EMD refresher subcourse.
2. Identify the major components of the EMD powerplant.
3. Know the components necessary for a typical EMD deployment.
4. Know the size and horsepower ratings of the engine.
5. Know the size and power rating of the generator.

105

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-2

POI FILE TITLE: Lube Oil System

SCOPE: Detailed description of the MP-36A powerplant lube oil system; major components; scavenging, main, piston cooling, soakback and prelube subsystems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant lube oil system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Know the five function of the four systems that make up the lube oil system.
2. Identify the different lube oil components, their functions, and operation characteristics.
3. Be able to state the flow of oil through the system.
4. Know the location of the components on the unit and trace the flow of oil through the system.

106

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-3

POI FILE TITLE: Fuel System

SCOPE: Detailed description of the MP-36A powerplant fuel system; major components; fuel transfer and engine fuel system flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant fuel system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the fuel system.
2. Know the purpose of each fuel system components.
3. Be able to locate the components on the unit.
4. Know the route of the fuel flow through the unit.
5. Be able to perform operator level maintenance on the fuel system.

107

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-4

POI FILE TITLE: Cooling System

SCOPE: Detailed description of the MP-36A powerplant cooling system; major components; cooling and immersion heater systems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, aper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant cooling system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the cooling system.
2. Know the purpose of each cooling system components.
3. Be able to locate the components on the unit.
4. Know the route of the coolant flow through the unit.
5. Be able to perform operator level maintenance on the cooling system.

108

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-5

POI FILE TITLE: Air Intake and Exhaust System

SCOPE: Detailed description of the MP-36A powerplant air intake and exhaust system; major components; air intake and exhaust flow systems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant air intake and exhaust system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the air intake and exhaust system.
2. Know the purpose of each air intake and exhaust system components.
3. Be able to locate the components on the unit.
4. Know the route of the air intake and exhaust flow through the unit.
5. Be able to perform operator level maintenance on the air intake and exhaust system.

109

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-6

POI FILE TITLE: Control Skid and Generator Room

SCOPE: Detailed description of the MP-36A powerplant control skid and generator room; battery banks; battery charger; speed sensing panels; control panels; protective relays; fuses; annuniator panel; static exciter; generator control cabinet.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4,- paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant operating parameters of the control skid and be able to trouble shoot the unit due to electrical and mechanical as indicited by the annunciator panel and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Locate and identify the components of the control skid and the generator room.
2. Describe the function and operation of components located in the control unit and generator room.
3. List the twelve annunciator faults..
4. List the actions that the annuciator faults cause.
5. List the seventeen devices that will cause a shutdown or lockout and list their specific causes.

110

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-7

POI FILE TITLE: Manual Operations

SCOPE: Detailed description of the MP-36A powerplant manual operation procedures; isolated operation; parallel operation.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re familiarize students with the proper procedures and sequences while manually operating the MP-36A powerplant isochronously and paralleled with other units and cooling system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify and perform the pre-operational checks and starting procedures on the Mp-36A powerplant.

2. Explain the load and speed restriction of the 1500 kW EMD units..

3. Explain the function and operation of the engine speed relays located on the speed sensing panel..

4. Locate, identify, and explain the function and operation of the manual controls.

5. List the steps required to close on to an isolated bus, and to parallel on to a live bus in the manual mode.

List the steps required to manually start, synchronize, and load the 4.5 MW electrical powerplant.

111

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-8

POI FILE TITLE: Electrical Systems

SCOPE: Detailed description of the MP-36A powerplant AC and DC electrical system; location and function of electrical components; Troubleshooting electrical problems using electrical prints; Practical exercise in tracing electrical circuit.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with troubleshooting an electrical problem on the MP-36A and MC-53 (Control Skid) using standard schematic diagrams.

ENABLING LEARNING OBJECTIVE:

1. Locate and identify the electrical components of the Mp-36A and the MC-53 on Change 4 and on the Emergency Generator control Diagrams.

2. Describe the function of the components in the electrical systems of the MP-36A and MC-53.

3. Describe the operation of the MP-36A and the MC-53 unit's AC and DC electrical system.

4. Identify the safety hazards of the 4.5 MW EMD powerplant electrical systems.

5. Trace an electrical circuit on the 4.5 MW EMD powerplant using the Change 4 manual.

112

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-9

POI FILE TITLE: Introduction to Operations

SCOPE: Detailed description of pre-operational check; manual starting; kW and kVAR load sharing; manual shutdown; post-operational checks.; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the pre-operational checks on the EMD 4.5 MW powerplant; start unit; place the unit on line; proportionally share kW and kVAR load; remove unit from the line per instructions; perform during and after operations checks and services.

ENABLING LEARNING OBJECTIVE:

1. Function as Equipment Operator..
2. Perform pre-operational check and services.
3. Function as Control Room Operator.
4. Initiate single and mult unit start up.
5. Perform during operation checks and services.
6. Pick up load with single unit on a dead bus.

Maintain bus parameters while operating a single unit on an isolated bus.

113

8. Parallel a unit to a live bus and pick up load.

9. Maintain bus parameters while operating multiple units on a hot bus.

10. Initiate unit shut down procedures.

11. Perform after operations checks and services.

114

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO. OT-11

POI FILE TITLE: Powerplant Operation

SCOPE: Practical exercise operating 4.5 MW EMD powerplant; pre-operational check; manual starting; isolated and parallel operations; kW and kVAR load sharing; manual shutdown; post-operational checks; log book procedures; operator maintenance procedures; operator troubleshooting; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the pre-operational checks on the EMD 4.5 MW powerplant; start unit; place the unit on line; proportionally share kW and kVAR load; remove unit from the line per instructions; perform during and after operations checks and services correctly annotate the Engineer Log Book to accurately reflect plant operations; shut down and secure the powerplant upon instructions..

ENABLING LEARNING OBJECTIVE:

1. Follow plant safety procedures.
2. Function as Equipment Operator..
3. Perform pre-operational check and services.
4. Function as Control Room Operator.

Initiate single and mult unit start up.

115

6. Maintain Engineer Log Book.
7. Perform during operation checks and services.
8. Pick up load with single unit on a dead bus.
9. Maintain bus parameters while operating a single unit on an isolated bus.
10. Parallel a unit to a live bus and pick up load.
11. Maintain bus parameters while operating multiple units on a hot bus.
12. Identify operational deficiencies and troubleshoot units to identify the cause.
13. Perform operator level repair as necessary.
14. Perform refueling techniques as required.
15. Initiate emergency shut down procedures.
16. Initiate unit shut down procedures.
17. Perform after operations checks and services.
18. Review engineer log book and identify any discrepancies.

J

Certificate of Completion

Awarded To

Neal M. Skvarca

For Successful Completion of

Satellite Accumulation Point Training

November 16, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Brenda L. Reed

For Successful Completion of

Satellite Accumulation Point Training

November 16, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Richard D. Rusek

For Successful Completion of

Satellite Accumulation Point Training

November 9, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Reuben R. Fullbright

For Successful Completion of

Satellite Accumulation Point Training

November 16, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

William E. Ellis

For Successful Completion of

Satellite Accumulation Point Training

November 16, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Charles Poston

For Successful Completion of

Satellite Accumulation Point Training

November 9, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Gordon D. Griffin

For Successful Completion of

Satellite Accumulation Point Training

November 9, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

Certificate of Completion

Awarded To

Dorsey D. Combs

For Successful Completion of

Satellite Accumulation Point Training

November 9, 1999

Stephanie M. Hadley
ENRMO STAFF - Instructor

Stephen C. Willard
Stephen Willard, Chief, ENRMO

K

Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

William E. Ellis

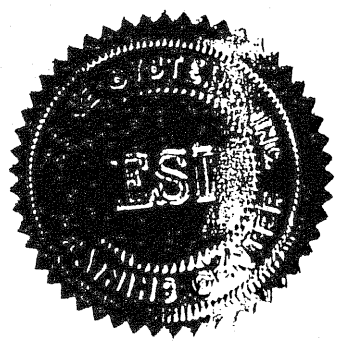
has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 10, 2000

Wesley Satchel
Instructor

Manager



Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Neal M. Skuarca

has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 12, 2000

Instructor

Manager

Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Brenda L. Reed

has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 10, 2000

Instructor

Manager

Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Charles F. Poston

has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 10, 2000

Wesley Satchell
Instructor

Manager

ESI

Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Gordon D. Griffin

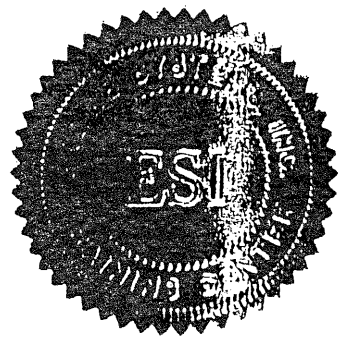
has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment.

EMD Operation, Maintenance and Safety Class

Presented: March 12, 2000

Instructor

Manager



Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Reuben R. Fullbright

has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 12, 2000

Instructor

Manager

Engine Systems, Inc.

Technical Service Training
Rocky Mount, North Carolina

This Certifies That

Dorsey D. Combs

has satisfactorily completed an instructional program covering the operation, maintenance or servicing of and electrical safety when working around Electro-Motive equipment

EMD Operation, Maintenance and Safety Class

Presented: March 12, 2000

Wesley Batchelor
Instructor

Steve Stein
Manager

ENGINE SYSTEMS, INC.
1220 Washington Street, Rocky Mount, NC 27801
P.O. Box 1928, Rocky Mount, NC 27802-1928
Telephone: (919) 977-2720 Fax: (919) 446-3830

ELECTRO MOTIVE
Authorized Distributor

SITE TRAINING PROGRAM

PREPARED FOR
U.S. ARMY GENERATING PLANT
FORT GORDON, GEORGIA

EMD MP-36A / MC53
DIESEL ENGINE ALTERNATORS AND ASSOCIATED EQUIPMENT

SESSION 1

BASIC DIESEL ENGINE COURSE
Training Manual Document - 76327TNG1

2032 Atlantic Avenue, Chesapeake, VA 23324 Telephone: (757) 543-3000 Fax: (757) 543-1595
11801 NW 100th Road, Suite 11, Medley, FL 33178 Telephone: (305) 885-5575 Fax: (305) 885-6422

FOREWORD

This Training Course has been prepared to serve as a guide to personnel engaged in the operation of the stationary diesel power units at the U.S. ARMY Generating Plant, Fort Gordon, Georgia. It is the intent of this training course to provide a general overview of the EMD MP-36A and MC53 housed diesel generator assemblies and the associated equipment included in the stationary power units at the generating plant.

The material included in this course is determined from the basic stationary power unit and common extra equipment. However the appearance herein or the absence of coverage for any particular system or component in no way implies that the equipment is or is not part of the specific equipment supplied. Wiring diagrams and assembly drawings that are unit-specific and included in the original equipment Operation and Maintenance Instruction and Parts Manuals take precedence over information presented in this general training course.

Additional information on application, maintenance, field connections, and electrical circuits may be found in the Maintenance Instructions, the EMD Engine Maintenance Manual, the Power Pointers, and the schematic diagrams. For specific equipment, it is advised that due consideration be given to manufacturer's pamphlets, bulletins, and catalog information located in the original equipment Operation and Maintenance Instruction and Parts Manuals supplied with the equipment.

TABLE OF CONTENTS

SECT.	TOPIC	PAGE
	TITLE PAGE	
	RECORD OF REVISION	
	NOTICE	
	TABLE OF CONTENTS	i to iii
	FOREWORD	
1.	INTRODUCTION AND GREETING	
	Course Description	1-1
	Course Objectives	1-2
	How to Get the Most from this Course	1-3
2.	EMD ENGINE HISTORY AND EVOLUTION	
	Lecture	
	Identification	2-1 to 2-5
3.	PRINCIPLES OF OPERATION	
	Diesel Engine	
	Arrangement	3-1
	Serial Numbers	3-3
		3-3
4.	ENGINE TECHNICAL DATA	
	General Information	
	Engine Data	4-1
	EMD 645 Series Diesel Engine Section	4-2
5.	OPERATING MANUAL	
	General Description	101
	Generating Unit Equipment and Systems	201
	Control Unit	301
	Installation and Pre-service	401
	Manual Operation	501
	Automatic Operation	601

TABLE OF CONTENTS

SECT.	TOPIC	PAGE
	Description of Electrical Devices	701
	Annunciator Operation and Troubleshooting	801
	Appendix	
6.	ENGINE MAINTENANCE MANUAL – 567E4	
	General Engine Information	0-1
	Crankcase and Oil Pan	1-1
	Cylinder Head and Accessories	2-1
	Piston Assembly and Connecting Rods	3-1
	Cylinder Liners	4-1
	Crankshaft and Accessories	5-1
	Camshaft Gear Train	6-1
	Air Intake and Exhaust Systems	7-1
	Lubricating Oil System	8-1
	Cooling System	9-1
	Fuel System	10-1
	Governor	11-1
	Protective Devices	12-1
	Starting System	13-1
	Troubleshooting	14-1
7.	SUPPORT DATA	
	Electric Starting Motor	MI-347
	Reconditioning Needle Valve Injectors	MI-418
	Panel Type Oil Bath Filters	MI-440
	Thermostatic Valve	MI-581
	Lead-acid Batteries	MI-704
	Lube Oil Filters	MI-926
	De-processing, Inspection and Tightening of New AC Power Generating Units	MI-1707
	Scheduled Maintenance Program	MI-1716
	Engine Coolant	MI-1748
	Diesel Fuel Recommendations	MI-1750
	Alignment of Rotating Equipment	MI-1753
	Magnaflux Inspection of Engine Components	MI-1754

TABLE OF CONTENTS

SECT.	TOPIC	PAGE
	Flushing Engine Lube Oil System	MI-1757
	Piston Phosphate Treatment	MI-1758
	Removal of Undercrown Deposits from 567 Engine Pistons	MI-1759
	Lubricating Oil Specifications	MI-1760
	Self-Sealing Window Weather Strip	MI-1803
	Fractional Horsepower Motors	MI-4101
	Fuel Pumps	MI-4110
	Auxiliary Relays	MI-5355
	Contactors – Braking, Shunting, and Starting	MI-5385
	Auxiliary Relays	MI-5434
	Wire Identification of Power Generating Unit Wiring Systems	MI-6839
	Application of Solderless Terminal Lugs and Connectors to Wire and Cable	MI-9111
8.	SCHEDULED MAINTENANCE PROGRAM	
	Operator Level Maintenance	
	Scheduled Maintenance Program	MI-1716
	Introduction	
	Every Month	
	Every Three Months	
	Every Six Months	
	Every Year	
	Every Two Years	
	Every 250 Hours	
	Every 500 Hours	
	Every 1000 Hours	
	Every 2000 Hours	
	Every 16,000 Hours	
	Every 56,000 Hours	
	Lubrication Schedule	
	Every Month	
	Every Three Months	
	Every 250 Hours	
	Every 2000 Hours	
	Every 16,000 Hours	

COURSE DESCRIPTION
PRODUCT FAMILIARIZATION

This intensive course is specifically designed to acquaint you with the history of the EMD engine, the various applications, and the design and construction features. The course is designed specifically for the EMD MP-36A housed diesel engine generating unit and its accompanying MC53 enclosed control and switchgear house. The course will also give you an opportunity to visit the power plant and see the equipment.

The course will utilize oral presentation, audio-visual aids, and participant discussion to ensure a basic understanding of the product installed. This course is intended for operators and maintenance personnel as well as supervisors and managers.

COURSE OBJECTIVES

The intent of this course is to acquaint the student with the EMD series 567, 645 & 710 diesel engines from the flywheel to the engine mounted accessories, including all related engine systems. The course will cover the principle of operation, various applications, and history of the EMD engine.

The major objectives of this program are as follows:

1. To familiarize the student with the history of the EMD engine and with the major components of the EMD 567E4 engines used at Ft. Gordon.

2. To explain the engine S/N and manufacture code and its importance.

3. To describe the principle of operation of the engine systems, and include prestart, operational levels, and post shutdown requirements of the EMD 567 diesel engines.

4. Provide technical data to the students that will enable them to maintain and operate the engine to EMD standards.

5. To familiarize the student with the EMD troubleshooting guide and the basic principles of troubleshooting.

HOW TO GET THE MOST FROM THE COURSE

1. The course belongs to you and its success rests largely with you.
2. Enter into the discussion *Enthusiastically*.
3. Give freely of your experience.
4. Confine your discussion to the problem.
5. Say what you think.
6. Only one person should talk at a time. Avoid private conversation while someone else is speaking.
7. Listen alertly to the discussions.
8. Be patient with other members.
9. Appreciate the other fellow's point of view.
10. Be prompt and regular in attendance.

ENGINE SYSTEMS, INC.
1220 Washington Street, Rocky Mount, NC 27801
P.O. Box 1928, Rocky Mount, NC 27802-1928
Telephone: (919) 977-2720 Fax: (919) 446-3830

SITE TRAINING PROGRAM

PREPARED FOR

U.S. ARMY GENERATING PLANT
FORT GORDON, GEORGIA

EMD MP-36A / MC53
DIESEL ENGINE ALTERNATORS AND ASSOCIATED EQUIPMENT

SESSION 2

POWER GENERATION COURSE
Training Manual Document - 76327TNG2

2032 Atlantic Avenue, Chesapeake, VA 23324 Telephone: (757) 543-3000 Fax: (757) 543-1595
11801 NW 100th Road, Suite 11, Medley, FL 33178 Telephone: (305) 885-5575 Fax: (305) 885-6422

TABLE OF CONTENTS

SECT.	TOPIC	PAGE
	Power Input Circuit	3-19
	Frequency Compensation	3-21
	Fault Current Support	3-24
	Motor Starting Capability	3-27
	Parallel Compensation	3-28
	Summary	3-28
4.	VOLTAGE REGULATOR SELECTION AND APPLICATION	
	Introduction	4-1
	Control of Generator Voltage	4-1
	Voltage Regulator Theory of Operation	4-2
	Power Stage	4-3
	Stability	4-4
	Forcing	4-6
	Selecting the Voltage Regulator	4-8
	Static Excitation	4-9
	Brush Type Rotary Exciter	4-10
	Brushless Rotary Exciter	4-11
	Other Selection Criteria	4-21
	Overexcitation Protection	4-21
	Underfrequency	4-22
	Conclusion	4-26
5.	VOLTAGE REGULATOR INFLUENCE ON GENERATOR SYSTEM STABILITY	
	Starting with the Basics	5-1
	Automatic Voltage Regulator and Stability Circuit	5-2
	Factors Affecting Voltage Stability	5-4
	Regulator and Generator Field Compatibility	5-6
	Testing for Compatibility	5-7
	Typical Instability Problems	5-14
	Conclusion	5-16
6.	PARALLEL OPERATION	
	Parallel Operation and the Voltage Regulator	6-1
	Why Control Two Variables? (kW, kVAR, kVA)	6-5
	Voltage Regulator and Parallel Operation	6-10

TABLE OF CONTENTS

SECT.	TOPIC	PAGE
	Reactive Droop Compensation and Reactive Droop Differential Compensation	6-11
	The Current Transformer Unit-Parallel Switch	6-22
	Current Transformer Placement	6-25
	Paralleling Generators of Different Size	6-25
	Paralleling Generators	6-26
7.	APPENDIX	
	Basic Fundamentals of Electricity	
	Philosophy of Protective Relaying	
	Fundamentals of Protective Relaying	
	Generator Phase Protection	
	Field Ground Protection	
	Stator Winding Ground Fault Protection	
	Overexcitation and Overvoltage Protection	
	Voltage Transformer Signal Loss	
	Loss of Field Protection	
	Generator Protection	
	Protection of Static Excitation Systems	
	Electrical Tables	
	Definitions and Formulae	

FOREWORD

This Training Course has been prepared to serve as a guide to personnel engaged in the operation of the stationary diesel power units at the U.S. ARMY Generating Plant, Fort Gordon, Georgia. It is the intent of this training course to provide a general overview of the electrical power generation capabilities of the EMD MP-36A and MC53 housed diesel generator units at the generating plant.

The material included in this course is determined from the basic stationary power unit and common extra equipment, as modified and upgraded by the U.S. Army. However the appearance herein or the absence of coverage for any particular system or component in no way implies that the equipment is or is not part of the specific equipment supplied. Wiring diagrams and assembly drawings that are unit-specific and included in the original equipment Operation and Maintenance Instruction and Parts Manuals take precedence over information presented in this general training course.

Additional information on application, maintenance, field connections, and electrical circuits may be found in the Maintenance Instructions, the EMD Engine Maintenance Manual, the Power Pointers, and the schematic diagrams. For specific equipment, it is advised that due consideration be given to manufacturer's pamphlets, bulletins, and catalog information located in the original equipment Operation and Maintenance Instruction and Parts Manuals supplied with the equipment.

COURSE DESCRIPTION
PRODUCT FAMILIARIZATION

This intensive course is specifically designed to acquaint you with the EMD A-20 generator, static exciter system, generator circuit breaker, generator protective relays and protective circuits, and step-up transformer, the various applications, and their design and construction features. The course is designed specifically for the EMD MP-36A housed diesel engine generating unit and its accompanying MC53 enclosed control and switchgear house. The course will also give you an opportunity to visit the power plant and see the equipment.

The course will utilize oral presentation, visual aids, and participant discussion to ensure a basic understanding of the product installed. This course is intended for operators and maintenance personnel as well as supervisors and managers.

COURSE OBJECTIVES

The intent of this course is to acquaint the student with the EMD A-20 generator, the static excitation system, generator control switchgear, and the step-up transformer, along with their basic design and construction features. The course will cover the principle of operation, various applications, and protective circuits of the EMD generating unit and switchgear.

The first requirement of a good operator and maintenance person, for any type of device, is to have a clear understanding of how the device works. Toward this end, it is required to have a clear understanding of what each part of the device is supposed to do, and it becomes necessary to be able to determine whether that part is actually performing its function. If it is not, a problem arises in the system and it then becomes necessary for someone to find the defect and correct it.

The major objectives of this program are as follows:

1. To familiarize the student with the EMD A-20 generator and its major components.

2. To familiarize the student with the static exciter system and its major components and accessories.

3. To describe the principle of operation of the generator, static exciter and voltage regulator system, to include operation and troubleshooting guidelines.

4. Provide technical data to the students that will enable them to maintain and operate the generating unit to EMD standards.

HOW TO GET THE MOST FROM THE COURSE

1. The course belongs to <u>you</u> and its success rests largely with you.
2. Enter into the discussion *Enthusiastically.*
3. Give freely of <u>your</u> <u>experience</u>.
4. Confine your discussion to the problem.
5. Say what you think.
6. Only one person should talk at a time. Avoid private conversation while someone else is speaking.
7. Listen alertly to the discussions.
8. Be patient with other members.
9. Appreciate the other fellow's point of view.
10. Be prompt and regular in attendance.

ENGINE SYSTEMS, INC.
1220 Washington Street, Rocky Mount, NC 27801
P.O. Box 1928, Rocky Mount, NC 27802-1928
Telephone: (919) 977-2720 Fax: (919) 446-3830

ELECTRO MOTIVE
Authorized Distributor

SITE TRAINING PROGRAM

PREPARED FOR
U.S. ARMY GENERATING PLANT
FORT GORDON, GEORGIA

EMD MP-36A / MC53
DIESEL ENGINE ALTERNATORS AND ASSOCIATED EQUIPMENT

SESSION 3

ELECTRICAL SAFETY COURSE
Training Manual Document - 76327TNG3

2032 Atlantic Avenue, Chesapeake, VA 23324 Telephone: (757) 543-3000 Fax: (757) 543-1595
11801 NW 100th Road, Suite 11, Medley, FL 33178 Telephone: (305) 885-5575 Fax: (305) 885-6422

SECT.	TOPIC	PAGE
	Surface Charges	2-4
	Static Charge on the Surface of a Liquid	2-4
	Static Charges on Rubber-tired Vehicles	2-5
	Charges on Dusts and Fibers	2-6
	Static Charges Due to Steam	2-6
	Illustrations	
3.	UNDERSTANDING ELECTRICAL HAZARDS	
	Introduction	3-1
	Types of Electrical Hazards	3-1
	How Does Electricity Act	3-1
	Planning	3-5
	Safety Morale	3-5
	Illustrations	
4.	PERSONAL SAFETY	
	Use of Protective Equipment	4-1
	Insulated Tools	4-7
	Alerting Techniques	4-8
	Personal Protective Grounding	4-9
	Grounding Cables and Hardware	4-9
	Application of Personal Protective Grounds	4-12

FOREWORD

This Training Course has been prepared to serve as a guide to personnel engaged in the operation of the stationary diesel power units at the U.S. ARMY Generating Plant, Fort Gordon, Georgia. It is the intent of this training course to provide a general overview of personal electrical safety while working in and around the EMD MP-36A and MC53 housed diesel generator units at the generating plant.

The material included in this course is determined from general electrical safety requirements in the power generating industry. This material is intended for instructional purposes only and should not be relied upon for technical detail. Always consult the manufacturer or other authoritative source before making design changes or performing maintenance on any equipment.

Engine Systems, Inc. (ESI), shall not be responsible for the accuracy of, use of, or inability to use any information provided in these student texts. Always obtain and use the latest issue of any referenced standards or publications before instituting or modifying new or existing electrical safety practices. ESI makes no warranties regarding the information contained in these student texts and disclaims all implied warranties including but not limited to those of merchantability and fitness for a particular purpose.

Additional information on concerns of safety as well as application, maintenance, field connections, and electrical circuits may be found in the Maintenance Instructions, the EMD Engine Maintenance Manual, the Power Pointers, and the schematic diagrams. For specific equipment, it is advised that due consideration be given to manufacturer's pamphlets, bulletins, and catalog information located in the original equipment Operation and Maintenance Instruction and Parts Manuals supplied with the equipment.

COURSE DESCRIPTION
PRODUCT FAMILIARIZATION

The intent of this course is to provide individuals with the minimum safety techniques and knowledge to work with, or in the near proximity to, energized low- and medium-voltage sources. The sole reason for this knowledge is to prevent accidents.

Knowledge obtained in this basic course, in itself, does not make an individual a qualified electrical worker. This knowledge will be supplemented by formal and informal training for electrical workers or others working in proximity to electrical hazards. Established guidelines will indicate the level of training required for each level of exposure.

This course covers minimum standard safety rules and practices for the operation and basic maintenance involved with the EMD MP-36A diesel engine generating units and MC53 housed switchgear and control units. These standards should be reviewed on a regularly scheduled basis and incorporated into the normal training agenda for personnel involved with generating plant operation and maintenance. The course will also give you an opportunity to visit the power plant and see the equipment.

The course will utilize oral presentation, visual aids, and participant discussion to ensure a basic understanding of the product installed. This course is intended for operators and maintenance personnel as well as supervisors and managers.

COURSE OBJECTIVES

The intent of this course is to acquaint the student with the requirements and standards for electrical safety while working in proximity to live electrical circuits. The course will cover the minimum standard safety rules and practices for the operation and light maintenance of the EMD generating unit and switchgear.

The first requirement of a work place safety of an operator or maintenance person is to have a clear understanding of the electrical hazards present and how to effectively work in proximity to them. Toward this end, it is required to have a clear understanding of the dangers, the proper safety measures to take, safety equipment, apparel, and tools to use to remain safe during the performance of his job.

The major objectives of this part of the course are as follows:

1. To familiarize the student with the basic precautions necessary to ensure safe operation of electrical systems.

2. To familiarize the student with the basic first aid procedures for a victim of electrical shock and the necessity of becoming proficient in CPR through properly supervised and monitored CPR training.

3. To describe the wiring necessary for a complete, safe circuit.

4. To describe how electricity causes injuries or death.

5. State five steps an operator can take to prevent an electrical shock.

6. List three circuit protection features for preventing electrical shock.

HOW TO GET THE MOST FROM THE COURSE

1. The course belongs to <u>you</u> and its success rests largely with you.
2. Enter into the discussion *Enthusiastically.*
3. Give freely of <u>your</u> <u>experience</u>.
4. Confine your discussion to the problem.
5. Say what you think.
6. Only one person should talk at a time. Avoid private conversation while someone else is speaking.
7. Listen alertly to the discussions.
8. Be patient with other members.
9. Appreciate the other fellow's point of view.
10. Be prompt and regular in attendance.

L

CLASS ATTENDANCE ROSTER

Instructor: CW2 Fobish

Subject: LOCKOUT/TAGOUT

Date: 14 NOV 00

NAME	SIGNATURE
Brenda Reed	Brenda Reed
GORDON D GRIFFIN	
REUBEN R. FULLBRIGHT	
NEAL M. SKVARCA	
WILLIAM E ELLIS JR.	
Charles E Poston	
JAMES V. PAVLISCAK	
RUSS PLANDIN - SAFETY	
DORSEY D. COMBS	Dorsey D. Combs 20 NOV 00

Course Syllabus
Safety Management Training Program

Course/Class Dates:	14 November, 2000
Class Days/Times:	Tuesday: 8:00 a.m. – 11:30 a.m. and 13:00 p.m. – 14:30 p.m.
Course Length:	5 hours
Location:	Directorate of Public Works, Bldg. 14600, Fort Gordon, GA 30905 E-mail: **Fobishj@gordon.army.mil**
Class Size:	8 to 12
Course Certification:	Certificate of Completion
Instructor.	CW2 John F. Fobish
Materials:	Instructor-Designed Materials, BRADLY Lockout/Tagout Booklet
Course Description:	Understanding Hazardous Energy Control Procedures Training Program is one of a four-part safety course. Upon successful completion of this course, students gain basic knowledge of safe work practices and organizational management requirements. They are able to identify factors of the hazardous energy control procedures; apply safety practices while working in hazardous conditions; understand and develop personal mastery skills as operators.
Course Prerequisites:	Field experience at the Fort Gordon Generator Site.
Course Vision:	To educate and train operators on how the proper use and application of all safety devices to provide for an optimum level of safety.
Course General Objectives:	Given instructor-developed supplemental materials, the BRADLY Lockout/Tagout Booklet, students learn and are able to identify hazardous energy control procedures, as well as use and apply safety devices, as evidenced by the students' ability to perform specific course objectives at a competency level of 70 percent on a written instrument.

Course Syllabus
Safety Management Training Program

Course Specific Objectives

- Employ and develop safety procedures.
- Provide Technical Assistance where needed.
- Interpret and Apply Regulatory Requirements

Competencies:

The student works on teams, lead negotiations, and interacts effectively with people from diverse backgrounds of experience;

The student analyzes and evaluates situations, strategize and facilitates safety skills, interprets and communicates information, and uses a computer to process information;

The student recognizes safety needs and applies those needs, monitors and corrects performance, and designs or improves safety systems;

The student selects proper safety methods, equipment and tools, applies safety technology to specific tasks;

The student thinks safety, makes decisions, solves problems, and knows how to apply higher order thinking in situations;

The student demonstrates individual responsibility, sociability, self-esteem, self-management, and integrity;

The student productively uses resources to provide for safe operations and maintenance.

Course Units:

- Unit 1: Hazardous Energy Control Procedures
- Unit 2: Personal Protective Equipment
- Unit 3: Safe Clearances
- Unit 4: Battery Safety

Course Schedule:

<u>Day 1:</u>

- Hour 1: 50 minutes
- Hour 2: 50 minutes
- Hour 3: 50 minutes
- Hour 4: 50 minutes
- Final Experience: 30 minutes
- Summative Evaluation: 30 minutes

Course Syllabus
Safety Management Training Program

Attendance Policy:	Students must attend a minimum of 5 course hours to receive the "Certificate of Completion." Course hours are determined by the student's presence during the 50 minutes of classroom activity each hour. Student's who are absent or tardy during each time of the 50-minute sessions are penalized for the entire hour. Individuals are selected for this course by senior management.
Grading Policy:	No grades assigned; however, all students must earn a minimum of 70 percent on the final experience. Student's not receiving 70 percent or better, will not earn a "Certificate of Completion", but will receive a "Certificate of Attendance."
Experiences (Tests):	Students are given a Post Test. A score of 70 percent earns a "Certificate of Completion."
Name of Instructor:	CW2 John F. Fobish
Text References:	Instructor Designed Materials, BRADLY Lockout/Tagout Booklet; UMCS SOP, Engineer Regulation 385-1-31; Safety Regulations; 29 CFR, 1910.147; 1910.137
Instructional Methods:	Instructional methods include: Informal Lecture and Interactive Group Discussions
Tools and Equipment	All tools, equipment, and supplies are provided by the Facilities Engineering Branch and the Instructor
Personnel:	Instructor and administrative support.

Course Syllabus
Safety Management Training Program

Instructor:	John F. Fobish
Class Date:	14 November, 2000
Length of Lesson:	5 Hours
Course Title:	Understanding Hazardous Energy Control Procedures
Text:	Instructor-Prepared Supplemental Materials; BRADLY Lockout/Tagout Booklet
Unit/Chapter:	Hazardous Energy Control Procedures
Lesson Title:	Understanding and Applying Lockout/Tagout

Lesson Overview: Good morning, my name is Chief Fobish and for the next 5 hours, I will be your primary instructor on the subject of ***Understanding and Applying Lockout/Tagout.*** When reviewing training material, it is important as operators to know the importance of lockout/tagout and how to effectively apply them, in efforts to provide for a safe working environment to maximize the expert productivity of the operators.

Performance Objectives: Given the information in the supplemental materials, booklet, class interactive discussion and a practical exercise, students learn and are able to efficiently and effectively identify factors pertaining to the hazardous energy control procedures. Students are also able to appropriately apply lockout/tagout to proper isolation devices on generator equipment as evidenced by their completing a hands-on exercise and a written experience, using information acquired through the class with a 70 percent accuracy within a 30 minute test period.

General Objectives: Upon completion of this lesson, the students will learn and be able to:

- Identify Hazardous Energy Control Procedures
- Understand Lockout and Tagout
- Understand Their Roles as UMCS Operators
- Apply Lockout/Tagout to Equipment

Materials: Instructional Supplements, Lockout/Tagout Booklet – BRADLY, UMCS SOP

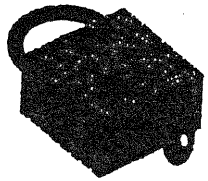
Teaching Aids: Overhead Projector

Preparation: Read, review and analyze information in supplemental materials and booklet. This course will incorporate training methods to accommodate all four learning styles: Concrete Sequential, Abstract Sequential, Concrete Random, and Abstract Random. This is performed by addressing what is accomplished, what is learned, what differences are made and the unique experiences received from the lesson.

Course Syllabus
Safety Management Training Program

Presentation: (50 Minutes):	1. Provide Overview 2. Show demonstration sample (TAGS) 3. Discuss components 4. Conduct training (practice teaching techniques) 5. Conduct interactive discussion
Questioning Techniques Using Higher Order Thinking Skills:	Explain why it is important to know how to identify factors of the Hazardous Energy Control Procedures? What are some of the factors discussed up to this point? What are some of your concepts and probable methods you would use throughout this process?
Participation:	Students may keep notes taken in class. Students will work individually and in teams to solve supplemental problems assigned for in class and on site projects through interactive discussion.
Summary:	Today, our objective was to identify factors of the Hazardous Energy Control Procedure; understand Lockout/Tagout, Apply Lockout/Tagout, and to Understand the Role of the Operator.
Performance Evaluation:	1. Student teams, through interactive discussion, will address areas of difficulty during presentation of processes. 2. Students will complete a Final Experience with 70 percent accuracy within 30 minutes.

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Brenda L. Reed

For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

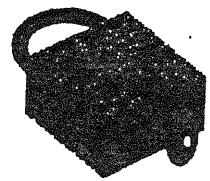
Director, DPW: _____

Mgr., Facilities Engineering: _____

Mgr., UMCS: _____

Instructor: _____

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Reuben R. Fullbright

For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

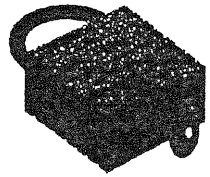
Director, DPW: _____

Mgr., UMCS: _____

Mgr., Facilities Engineering: _____

Instructor: _____

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Dorsey D. Combs

For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 20, 2000*

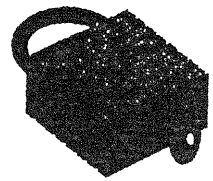
Director, DPW: Michael Gibbons, COL, EN

Mgr., UMCS: James V. Pankowich

Mgr., Facilities Engineering: [signature]

Instructor: John F. Fobbs

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Gordon D. Griffin

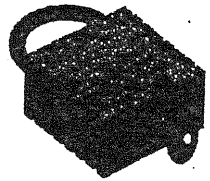
For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

Director, DPW: _____ **Mgr., UMCS:** _____

Mgr., Facilities Engineering: _____ **Instructor:** _____

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Charles F. Poston

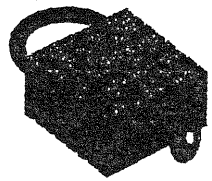
For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

Director, DPW: _____ **Mgr., UMCS:** _____

Mgr., Facilities Engineering: _____ **Instructor:** _____

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

William E. Ellis, Jr.

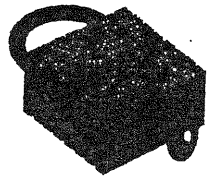
For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

Director, DPW: _____ **Mgr., UMCS:** _____

Mgr., Facilities Engineering: _____ **Instructor:** _____

LOCKOUT / TAGOUT



Certificate of Completion

is

Awarded to

Neal Skvarca

For Successfully Completing the
LOCKOUT / TAGOUT Training Course

Given On This Day: *November 14, 2000*

Director, DPW: _____

Mgr., UMCS: _____

Mgr., Facilities Engineering: _____

Instructor: _____

M

Noresco Annual Safety Training
Instructor: John Quirk
Training Dates: Dec. 17-18, 2001

The following people attended the annual Noresco 10 hour safety training course (OSHA)

Attendee	Date Complete	Instructor Signature
Peter Batayias	12/18/01	
Charles Urgitus	12/18/01	
Doug Combs	12/18/01	
Brenda Reed	12/17/01	
Gordon Griffin	12/17/01	
Leonard Bernard	12/17/01	
Michael McTier	12/18/01	
Kenneth Coleman	12/17/01	
Richard Rogers	12/18/01	

Next Page Reflects Course Content

10 Hour Construction
Safety & Health Outreach Program

Table of Content

Section I Introduction to OSHA

Section II Electrical Safety/LOTO - Subpart K

Section III Fall Protection-Subpart M

Section IV Material Handling, Storage, Use and Disposal-Subpart H

Section VI Stairways and Ladders-Subpart X

Section VII Scaffolds-Subpart L

Section VIII Excavation-Subpart P

Section IX Hand and Power Tool Safety-Subpart I

Section X Welding and Cutting

THE ADDITIONAL TOPICS WERE HAZARDOUS COMMUNICATION & ASBESTOS

N

ECSM-02: EMERGENCY GENERATOR CBL

ATTACHMENT R
SCOPE OF WORK

FT. GORDON
PROJECT SCOPE
03-14-01

A) Generator Plant
1) Perform the following upgrades to Plant
a) Perform the following work on all 9 engines:
(i) Remove coolant; flush and replace with new coolant.
(ii) Inspect turbos.
(iii) Clean, inspect main bearing, and megger test generators.
(iv) Test lube oil, replace if determined to be necessary by lab results (lube oil to be supplied by ERI Services). Replace all other fluids and filters.
(v) Repair exhaust leaks.
(vi) Rebuild unreliable starters. If starters are beyond repair, the base will be responsible for providing rebuildable replacements.
(vii) Replace fuel racks with spring-loaded type.
(viii) Replace top seals.
(ix) Install spin on fuel filter plates and filters.
(x) Test all safeties.
(xi) Perform operational tests.
b) Perform the following upgrades on engines in sets 1 & 2:
(i) Replace radiators with heavy-duty model.
(ii) Replace old vibration dampers.
c) Perform center section overhauls on engines 2-1,2,3, & 1-1,3 to include:
(i) Replace all parts exhibiting unacceptable wear upon disassembly and inspection.
(ii) Replace turbo on engine 2-2. Rebuilt turbo to be supplied by the Base.
d) Inspect 4 engine generator sets to include:
(i) Perform annual inspection.
(ii) Replace any parts that exhibit severe wear or render engine unreliable.
e) Provide critical spare parts.
f) Install storage trailer on site.
g) Provide special tools and equipment.
h) Install bulk lube oil storage and delivery system.
i) Install one, 5 ton AC unit for #3 control van.
j) Install new compressed air system for lube oil pump and pneumatic tools.
k) Install new shore power backup transformer.
l) Install new cooling fans on 3 power transformers.
m) Install new site lighting.
n) Control cubicles:
(i) Perform PM on all controls, Agastats, relays, connections, and breakers. Visually inspect all components and clean all open relay contacts.
(ii) Replace all batteries and install new batteries in 3 new exterior battery cabinets.
(iii) Base has plans to install new kWh metering for each generator.

(iv) Install and program controls to control engine loading and communicate with the Dorsett system. The system shall monitor base load by interfacing with instrumentation in the center control cubicle and the Dorsett system. Operator interface shall be provided to monitor engine output and input base load profiles. Base load profile to be attained by controlling the output of the generators. Base peak load to be capped at approximately 17.5 MW.

o) Move 4 kV to 12 kV transformer to new pad in generator plant area for emergency use. In the event of a failure by one of the existing transformers, the base will have this be connected to the appropriate points by the JCWS HV crew.

p) Install two 15,000 gallon tanks of additional fuel storage adjacent to existing fuel storage.
   (i) Install concrete pad to place new tanks on.
   (ii) Tanks to be steel with integral containment.
   (iii) Install fill station and piping.
   (iv) Make connection to existing fuel delivery system.
   (v) Install new fuel delivery system connected to each generator and utilize existing internal fuel pumps. Provide tie to connect existing fuel tanks upon commissioning of new fuel delivery piping.
   (vi) Install expansion tank to prevent fuel pipe leaking.
   (vii) Extend day tank overflow vent piping up approx. 3 feet.
   (viii) Provide power to overflow tank pump controls.

2) Base Substation
   a) Connect long and short busses with manual knife switch in line.
   b) Remove voltage regulators from circuits and leave on site at location designated by Fort Gordon.
   c) Leave both puffers connected (only one will be used at any given time and the second will remain connected for backup).
   d) Replace power wiring on both sides of long bus puffer to 2,000 amp rating.
   e) Modify the Reverse Power Relay so that if either RPR senses a reverse power condition, both breakers connecting the emergency bus to the new combined bus and the puffers shall trip.

3) Dorsett System
   a) Complete CHWS control, if any work remains from current project. Prove system operation.
   b) Complete chiller plant controls, if any work remains from current project.
   c) Complete interface with engine controls to deliver current Fort Gordon electric load and generator output requirement information.
   d) Install new radios and repeater at UMCS control center. Provide one handset to the Fort Gordon technical advisor.

4) Hospital
   a) Inspect engine generator set to include:
      (i) Perform annual inspection.
      (ii) Inform the Base of any parts exhibiting severe wear or rendering the engine unreliable and in need of urgent repair.
      (iii) Inspect turbos.
      (iv) Test all fluids.

(v) Perform operational tests.
(vi) Test all safeties.

b) Install controller, DSLC, VAR controller, new main breaker, reverse power relays, and other controls necessary to control engine synchronization, parallel operation, and load control on 2.1 MW. Monitor hospital load by interfacing with Dorsett instrumentation. Control from the operator station located at the UMCS center. Hospital load profile to be attained by controlling the output of the generator. Peak load to be capped at approximately 3.15 MW.
c) Install new fill station and piping for existing fuel storage tanks.
d) Provide 1.6 MW standby rental generator for 2001 Summer season to back up the existing 2.1 MW generator and operate at low load conditions.

5) Hospital Substation
   a) Add reverse power relay to the feed from utility to substation. This relay shall trip the new generator breaker.
   b) In the case of a GP failure, the new breaker will open and the hospital emergency power operational procedures will remain unchanged.
6) RF System
   a) Test RF transmitter.
   b) Test approx. 900 RF receivers.
   c) Repair disconnected wires.
   d) Replace estimated 320 failed receivers.
   e) Properly address new digital receivers.
7) Operations Manual
   a) Prepare Operations Manual and Submit for Review and Approval by Fort Gordon.

ERI SERVICES RESPONSIBILITIES

B) UMCS OPERATIONS

1) Respond to phone calls from Base personnel requiring UMCS intervention.
2) Operate and monitor the UMCS main control room facility controlling utilities systems throughout the installation using the UMCS and FM radio Load Management Controllers (LMC).
3) Identify problems in connected systems and inform the COR and the BOSS contractor of any evident problems that require their attention.
4) Identify problems in the Dorsett system and coordinate any repairs necessary with the ERI Services UMCS repair staff.
5) Adjust set points and schedules, change, add, adjust and install control blocks and displays as required.
6) Operate the load-shed controls, as necessary. Install new LS equipment as necessary. Base to supply new equipment.
7) Recommend, and assist the energy section on, creating standards, requirements, specifications, cost needs for projects involving installation, modification, replacement, or overhaul of various automatic or semi-automatic controls utilized, serviced, operated, and/or maintained by the UMCS.
8) Serve as point of contact (POC) for the Directorate of Public Works (DPW) during load-shed operations and emergency utility outages.
9) Provide UMCS operations services as required for natural gas curtailments.
10) Monitor fuel oil storage tanks and direct Fort Gordon to order fuel as required. Assist fuel supplier with deliveries of generator fuel.
11) Monitor bulk lube oil storage tank, order lube oil as required and bill Ft. Gordon for delivered oil. Assist oil supplier with deliveries of generator lube oil.
12) Receive heating fuel oil deliveries in approximately 13 small tanks on the base.
13) Maintain Operations Manual and Update Periodically in Consultation with Fort Gordon

C) UMCS MAINTENANCE AND REPAIR SERVICES

1) Perform UMCS control maintenance, troubleshooting, repair, overhaul, modification, testing, calibration, and installation of the various mechanical, electrical, electronic, and pneumatic instruments and equipment that make up the existing UMCS.
   a) Any new work will result in additional charges to the Base, price to be quoted in advance.
   b) Minor new work is included in this scope. This is defined as a task that requires a total of less than 2 hours of field and or programming work. An allowance of one such task per week is included in this scope. This allowance is not cumulative beyond a four-week period. Any new equipment required for this shall be supplied by or billed to the base.
2) Annually calibrate each sensor connected to the UMCS system. The Base will be notified by email of any local controls sensor that is out of tolerance and in need of replacement and generate an appropriate work order for action by BOSS contractor.

a) A complete list shall be developed and agreed to by the Base, prior to May 1, 2001 delineating the line of responsibility for local controls between ERIS and others, for each building on the base.
b) Minor repairs of end devise connections, such as tightening a wire connection, shall be included in this scope.

3) Annually calibrate the positioning controls for dampers, valve actuators, etc. The Base will be notified by email of any local controls actuator that is out of tolerance and in need of replacement and generate an appropriate work order for action by BOSS contractor.
4) Provide repair or replacement of any Dorsett component as needed, except for those regarded as "local controls". Costs resulting from a failure deemed the result of a Force Majeure or an act of others not under the control of ERI Services will result in additional charges to the Government.
5) Provide technical review of drawings for any new UMCS work being proposed on Base.
6) Identify underground UMCS cables for base or other contractors prior to their beginning any excavation.
7) Provide repair services for any UMCS communications cable that has been damaged by new work. Base shall be charged for this service unless the cable was damaged as a result of ERIS staff incorrectly locating it prior to the new work.
8) Annually test up to 900 RF receivers and the transmitter.
9) Reconnect any disconnected receivers. In the event that more than 8 receivers are disconnected in one area, the Fort Gordon inspector and COR will be notified of the situation. If repairs are authorized by the COR, the base will be billed for any additional work required as a result of work performed by other contractors.
10) Labor for the replacement of FM receivers is included. Base shall supply or be billed for any equipment necessary.
11) Provide ongoing software training for UMCS personnel, as necessary. Base technical advisor shall be invited to attend. Others may be invited as necessary. Training and other new costs resulting from new work by others are to be covered by others.
12) Provide annual Dorsett system software updates as they become available. Necessary patches or fixes shall be installed ASAP.
13) When multiple failures exist at the same time, ERI shall initiate repair efforts in the following order of priority:
    a) Server and master control room equipment.
    b) Communication lines.
    c) Field interface devices.
    d) Multiplexes.
    e) Controllers.
    f) Control components.
    g) Monitoring components.
14) The Dorsett's maintenance tasks, as defined in the current Dorsett's maintenance contract with the base, are hereby incorporated in this Scope of Work.

D) UMCS EXCLUSIONS

1) The following is a list of some of the items that are regarded as existing deficiencies in the UMCS system. An existing deficiency is defined as any problem in the Dorsett

system that existed prior to and is identified prior to June 1, 2001. Service calls, repairs, and replacements for any such items will result in additional charges to the Base. This includes, but is not limited to, the following:

a) Repair or replace any Dorsett, or other covered, component that has failed, been disconnected or blocked off, or is out of tolerance prior to May 1, 2001.
b) Repair or replace existing failed or failing communications lines.

2) Any new work, such as additions to the system, replacement of Dorsett's components that must be replaced due to obsolescence, is not included in the scope of this contract and will be priced separately. Any new additions to the system, regardless of who performs the work, will require a modification to the annual UMCS O&M contract, and result in an increase in annual system maintenance costs.

3) Costs associated with the upgrade or repair to the servers, workstations and other non-Dorsett equipment and the required upgrades for non-Dorsett software, including, but not limited to, Oracle, virus protection, and Windows NT, shall be provided by the Base. ERIS staff will install upgrades. The Base will either supply or be billed for any such equipment or software.

E) GENERATOR PLANT OPERATIONS AND MAINTENANCE

1) Operate three 4.5 MW generator plants as necessary for:
   a) Load-shedding for IS operations including instructions to BOSS contractor. ERI will maintain a list of equipment for which the BOSS contactor shall be responsible for IS operations.
   b) RTP operations. Load shed levels shall be coordinated with the base.
   c) Standalone emergency power when required. The base will provide ERIS with contact information for any other organizations with which emergency operations must be coordinated.

2) If GP fails while the generators are in parallel with the utility:

   a) The tie breaker will open.
   b) Plant staff will provide emergency power to the Emergency Bus and coordinate other emergency operations with the BOSS HV crew.

3) Perform regular maintenance on generator sets, including:

   a) Change filters as required.
   b) Add lube oil as required.
   c) Rebuild, repair, rebuild or replace pumps, motors, starters, injectors, valves, and controls as required.
   d) Perform minor repairs on engines costing less than $10,000 in its aggregate per repair.

4) Perform regular maintenance and repairs on Plant control systems.

5) Perform Engine Annual Inspection per EMD M.I. 1722, including:

a) Lube oil circulating pump and motor:
   (i) Inspect and clean. Repair or replace as necessary.
   (ii) Remove and clean check valve. Repair or replace as necessary.

b) Electrical control cabinet:
   (i) Check operation of protective devices. Repair or replace as necessary.
   (ii) Calibrate KWH metering equipment.
   (iii) Visually inspect and clean Basler SSE exciter and voltage regulator.
   (iv) Remove circuit breakers from compartments and clean insulators, lubricate linkage bearings, and check operation.

c) Cooling system:
   (i) Check operation and setting of engine water temperature controls.
   (ii) Check torque on flexible pipe coupling bolts.
   (iii) Take cooling water sample for lab analysis and corrosion test.

d) Lube Oil System
   (i) Change oil filter elements.
   (ii) Change turbo filter element.
   (iii) Clean lube oil strainer.
   (iv) Take lube oil sample for lab analysis.

e) Engine
   (i) Inspect cylinders, piston, and rings. Reseal or replace as necessary.
   (ii) Take lead readings and document on EMD form.

f) Operational Test
   (i) Start generator set and place on line at near full-load.
   (ii) Take temperatures, pressures, and load readings.

g) Perform PM on generators:
   (i) Clean windings.
   (ii) Lube bearing.
   (iii) Megger test windings.

h) Perform PM on fuel storage tanks:
   (i) Spot sand and paint rusting spots.
   (ii) Inspect fuel level sensors. Repair or replace as necessary.
   (iii) Inspect fuel lines for leaks. Repair or replace as necessary.

F) POWER PLANT EXCLUSIONS

1) Costs resulting from any replacement or repair procedure, which in its aggregate, costs more than $10,000 to complete, (adjusted for 2.8% inflation per year) are not included in the scope of this contract and will result in additional charges to the Base. The phrase "in its aggregate" as used herein, means the total of all costs resulting from a particular repair procedure, such as a partial or major overhaul. For the purposes of this section, any such repair or procedure shall be regarded as a single repair. Some examples of such items are:
   a) Cracked cylinder head or liner.
   b) Cracked block.
   c) Turbo failure.
   d) Rear gear train failure.
   e) Front gear train failure.
   f) Main bearing failure.
   g) Oil cooler failure.
   h) Rod, crankshaft or camshaft failure.
   i) Leaks which result in lube oil contamination while engine is operating.
   j) Generator bearing, shaft or winding failure.

2) All costs associated with repair or replacement of the following items are not included in the scope of this contract, except as noted above:

   a) The generator portion of the generator sets.
   b) The silencer portion of the generator sets.
   c) The cabinet portion of the generator sets and control vans.
   d) Power transmission equipment, such as transformers, breakers, and transmission lines.
   e) Any parts that become unavailable from regular "off the shelf" commercial sources.
   f) Operations, maintenance, and repair of all equipment in the substation.

3) The Base plans to replace the 9 generator breakers. However, if this is not completed, any cost or liability resulting from the lack of proper operation of the existing breakers shall be the responsibility of the Base.

4) The Base shall be responsible for the ordering and timely delivery of fuel oil upon notification from ERI Services of a need. Liabilities resulting from a fuel oil shortage shall be the responsibility of the Base. ERIS staff shall give the base a minimum of 48 hours notice of the need for a 7500 gallon fuel delivery.

5) ERIS shall be responsible for the ordering and timely delivery of lube oil. ERIS shall pay for the lubrication oil and then bill Fort Gordon for the lube oil costs.

6) The Base shall be responsible for the performance of, and costs associated with, Hazmat spill cleanup, currently under the BOSS contract.

   a) In the case of a hazmat spill, which occurs as a result of negligent actions on the part of ERIS staff, ERIS shall be responsible for the costs incurred.

G) HOURS OF ON-BASE COVERAGE

1) Coverage by a minimum of one fully qualified staff member shall be provided on Base at the UMCS in Building 14600 by ERI Services on weekdays between the hours of 6:00 a.m. and 10:00 p.m. and on weekends and holidays between the hours of 8:00 a.m. and 4:00 p.m.

2) Manpower Coverage

3) Operations – Test Year

4) Project Management
   a) 1 Man, 1 Shift, Weekdays — 35 Weeks (May – December)

   b) UMCS Operations
      (i) 3 Men, 2 Shifts, Weekdays — 35 Weeks (May – December)

   c) Dorsett Maintenance and Repair
      (i) 2 Men, 1 shift, Weekdays

   d) Generator Plant
      (i) 4 Men, 2 Shifts, Weekdays — 22 Weeks (May – September)
      (ii) 1 Man, 1 Shift, Weekdays — 13 Weeks (October – December)

   e) Hospital Plant
      (i) Johnson Controls will operate with their current staff
      (ii) ERI Services Monitoring, 1 Man, 1 Shift, Weekdays
      22 Weeks (May – September)

   f) Overtime – UMCS
      (i) 1 Man, 1 Shift, Weekend Days and Holidays — 35 Weeks (May – December)

   g) Overtime – General
      (i) 16 Man Hours — 35 Weeks (May – December)

   h) Night and Weekend Coverage
      (i) UMCS Emergency Call
      (ii) Atlanta Response Center

5) Operations – Contract Term

   a) Project Management
      (i) 1 Man, 1 Shift, Weekdays — 52 Weeks (January – December)

   b) UMCS Operations

(i)	3 Men, 2 Shifts Weekdays	52 Weeks (January – December)

c) Dorsett Maintenance and Repair

(i)	2 Men, 1 Shift, Weekdays	

d) Generator Plant

(i)	1 Man, 1 Shift, Weekdays	52 Weeks (January – December)

e) Hospital Plant

(i)	Coverage by Johnson Controls	

f) Overtime – UMCS

(i)	1 Man, 1 Shift, Weekend Days	52 Weeks (January – December)
(ii)	1 Man, 1 Shift, Holidays	(11)
(iii)	16 Hours/Week	17 Weeks
(iv)	4 Hours/Week	35 Weeks

g) Night and Weekend Coverage

(i)	UMCS Emergency Call
(ii)	Atlanta Response Center

H) HOURS OF REMOTE UMCS COVERAGE

1) ERI Services' Remote Control Center (RCC) is staffed 24 hours per day, 365 days per year. The staff is available to provide coverage by remote control at all times when the UMCS office is not staffed. The UMCS office number will be forwarded to the RCC when no on-site staff is available to answer phone calls. The RCC will provide monitoring and necessary adjustments where possible.

2) In the event of an emergency that cannot be resolved by the RCC:

   a) The staff member shall respond by telephone within 30 minutes of a call being placed and be available on Base within one hour from receipt of the call.

   b) The RCC will contact ERI Services' local on-call staff member, who will respond by visiting the site. Six such emergency site visits per calendar year are included in this scope. Any additional required visits shall result in additional charges to the Government. This allowance shall not be cumulative.

   c) In the event that the ERI Services RCC cannot be reached, ERI Services' toll-free National Emergency Maintenance Number, 877-270 –6600, should be called. The operator will ask for the name of the caller, site name and location, nature of the issue, and a call back number. A local staff member will be located, who will respond to the call within 30 minutes.

I) PROCEDURES FOR FORCE MAJEURE EVENTS

1) In the event of any occurrence falling in this category, ERIS shall immediately contact the base inspector and COR to coordinate resolution.

2) Force Majeure events could occur during the course of this Contract and, despite our best efforts, could result in a suspension of services by ERI Services to Fort Gordon. The goal of ERI Services in all cases is to return the UMCS and Emergency Generator Plant operations back to normal as soon as possible. Repair costs resulting from an event that falls under this category may result in additional charges to the Government. Other associated losses or liabilities resulting from an event falling under this category will be the responsibility of the Government.

3) Some of the events identified in the contract include the following:

   a) Acts of God or of the public enemy
   b) Acts of Government in either its sovereign or contractual capacity
   c) Fires
   d) Floods
   e) Epidemics
   f) Quarantine restrictions
   g) Strikes
   h) Freight embargoes
   i) Lightning strikes
   j) Unusual severe weather

4) If all problems cannot be remedied immediately, ERI Services will notify Fort Gordon DPW of the event. This shall be done through contacting, by any means possible (telephone, email, facsimile transmission, written communication, in person), at the earliest time possible after the event occurs, the designated Fort Gordon Point of Contact or their alternate.

5) For unresolved problems, ERI Services shall determine the nature and extent of the problem and determine what areas have been impacted and to what degree. At that point, in consultation with the Fort Gordon DPW, an action plan for the restoration of full services will be developed and implemented by ERI Services.

6) Resetting components, replacing fuses and other protective devices do not fall in this category.

7) In the event of an event, which results in widespread UMCS or significant Power Plant failures, all ERIS staff will respond to return operations to normal.

O

Headquarters
Department of the Army
Washington, DC
31 December 1993

*Army Regulation 600–55

Effective 31 January 1994

Personnel—General

The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing)

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the Secretary of the Army

History. This publication has been reorganized to make it compatible with the Army electronic publishing database. In making this electronic publication, certain changes had to be made. The information that was in figure 4–1 has been formatted into table 4–1. The figure that was labelled 4–2 is now figure 4–1. In paragraph 4–1b, the reference to figure 4–2 has been changed to figure 4–1. In paragraph 4–3c, the reference to figure 4–1 has been changed to table 4–1. In paragraph 4–4c, the reference to figure 4–2 has been changed to figure 4–1. In paragraph 4–5, the reference to figure 4–2 has been changed to figure 4–1. Titles have been given to the major paragraphs in appendixes B and C, as these are required. Paragraph G–3b(1) has been broken into two paragraphs, G–3b(1) and G–3b(2). Except for these minor changes, no content has been changed or added to this publication.

Summary. This regulation governs the selection, training, testing, and licensing of motor vehicle drivers and equipment operators.

Applicability. This regulation applies to the Active Army, the Army National Guard, and the U.S. Army Reserve. It also applies to all Department of the Army civilian employees, nonappropriated fund employees, Youth/Student Assistant Program employees, foreign nationals directly and indirectly employed by Department of the Army, and contractor personnel operating Army vehicles and equipment. This regulation is applicable during full mobilization.

Proponent and exception authority. The proponent of this Army regulation is the Chief of Staff, Army. The Chief of Staff, Army has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The Chief of Staff, Army may delegate this approval authority, in writing, to a division chief under their supervision within the proponent agency who holds the grade of colonel or the civilian equivalent.

Internal control systems. This regulation is not subject to the requirements of AR 11–2. It does not contain internal control provisions.

Army management control process. Not applicable.

Supplementation. Supplementation of this regulation and establishment of command and local forms are prohibited without prior approval from Army Safety Office (DAC–SF), Chief of Staff, 200 Army Pentagon, Washington, DC 20310–0200.

Interim changes. Interim changes to this regulation are not official unless they are authenticated by the Administrative Assistant to the Secretary of the Army. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Army Safety Office (DAC–SF), Chief of Staff, 200 Army Pentagon, Washington, DC 20310–0200.

Distribution. Distribution of this publication is made in accordance with the requirements on DA Form 12–09–E, block number 2387, intended for command level A for the Active Army, the Army National Guard, and the U.S. Army Reserve.

Contents (Listed by paragraph and page number)

Chapter 1
Introduction, *page 1*
Purpose • 1–1, *page 1*
References • 1–2, *page 1*
Explanation of abbreviations and terms • 1–3, *page 1*
Responsibilities • 1–4, *page 1*

*This regulation supersedes AR 600–55, 26 September 1986, and DA Pam 611–125, 11 March 1965.

UNCLASSIFIED

Block 16: Qualified to Operate. Enter detailed description of vehicle or equipment (transcribed from DA Form 348; blocks 13 and 14). If additional space is needed to record vehicles or equipment that an individual is qualified to operate, use the Part 2 portion of additional OF 346. Be sure to annotate the same card number as the original OF 346 in Block 17 of all additional Part 2 portions. The qualifying official is the examiner, who is designated in writing by the commanding officer to conduct driver testing and to verify driver performance qualification.

Block 17: Other Records (Optional). Enter the card number as shown in block 1. In addition, use this block to enter additional vehicles or equipment operator is qualified on, as well as locally required entries (that is, winter driver training, and so forth) If parts 1 and 2 become separated, this will not void the OF 346 as long as both parts are available and have the same card number (see instructions for block 1 above). An individual must carry both parts when driving or operating vehicles or equipment.

Figure 6–1. Sample Form OF 346 with Instructions—Continued

Chapter 7
Mechanical or Ground Support Equipment

7–1. Qualification to operate

a. All military personnel and DA civilians must have an OF 346 and demonstrate their proficiency in order to operate the following mechanical or ground support equipment:

(1) Electrical power generating equipment, 0.5 KW and above (electric motor driven, diesel engine driven, gasoline engine driven, and gas turbine driven sets).

(2) Gas generating equipment, all sizes and capacities (such as oxygen, nitrogen, and acetylene).

(3) Water purification sets, all sizes and capacities.

(4) Air compressors, all pressures (not to include installed automatically controlled units).

(5) Materiel or cargo handling equipment, all sizes and capacities, for example, forklift trucks, warehouse tractors and cranes, straddle trucks, and flightline tugs.

(6) Railroad equipment, all sizes and capacities (locomotive, locomotive cranes, and motor cars).

(7) Bridging equipment, all bridge erection boats, mobile assault float bridge or ferry transporters, and outboard motors.

(8) Self-propelled amphibious equipment, all sizes and capacities (LARC–V, –XV, and –LX, and LACV–30).

(9) Construction equipment or off-road equipment, all sizes and capacities (including but not limited to tractors, wheeled or tracked; cranes, wheeled or tracked; front loaders; small emplacement excavators (SEEs); motorized or self-propelled scrapers, rollers, sweepers, and earth augers, saw mills; chain saws; snow plow-rotary; ditching machines; rock crushing and screening plants; asphalt batch plants; concrete mixers and plants; asphalt and concrete spreaders; water and bituminous distributors; hot oil heaters; and hydraulic or mechanical vibrating tampers).

(10) Heating and cooling equipment, all sizes and capacities (such as air conditioning and refrigeration units powered by liquid fuel engines, space duct-type heaters using liquid fuel, and steam cleaning equipment).

(11) Pumping equipment; all pumps 50 gallons per minute (GPM) and above, when powered by liquid fuel engines.

(12) Printing presses and paper cutters, all makes and models, excluding manually operated paper cutters.

(13) Mine-detecting equipment, truck mounted; all makes and models.

(14) Utility element (power plant) used with the medical unit, self-contained, transportable hospital elements, all makes and models.

(15) Miscellaneous equipment, any equipment determined by the local commander or higher authority to warrant licensing such as powered lawn mowers; agricultural machinery; food preparation equipment; field ranges; immersion heaters; laundry equipment; snowmobiles; detecting sets, mine portable, AN/PRS–7 and AN/PSS–11.

b. Application of these procedures will begin with the selection of persons to be licensed. The tests prescribed herein will be given throughout the Army. Successful completion of the prescribed tests will not automatically qualify a person for retention as an Army vehicle or equipment operator if, for medical, disciplinary, or other reasons (including prior accident record, attitude toward driving, use of intoxicants or pathogenic drugs), he or she appears to be incapable of continuing as a safe and competent vehicle or equipment operator. The issuing authority may revoke an operator's OF 346 based on the recommendations of safety or medical personnel.

c. Training and education programs designed to establish and reinforce safe operating habits and positive attitudes toward driving are required for motor vehicle licensing and apply to all operators. Minimum training requirements are contained in chapter 4 for vehicles and chapter 7 for other equipment. MACOM and MUSARC commanders may establish more stringent training programs.

7–2. Procedures

a. Equipment operator testing and licensing procedures for self-propelled equipment will conform with this regulation. Additional procedures for materiel-handling equipment are contained in TB 600–2. Physical evaluation measures and operator performance tests will be used.

b. Equipment operator testing and licensing procedures for nonself-propelled equipment will conform to the requirements contained in TB 600–1 and TB 600–2.

c. Applicants will be required to satisfactorily demonstrate their proficiency in operating each piece of equipment for which they are to be licensed.

d. Qualification on non-self-propelled equipment will be entered on DA Form 348, section I, and training will be entered in section III.

Chapter 8
Night Vision Devices

8–1. Standardized training, testing, and licensing

This chapter provides commanders with standardized training, testing, and licensing requirements for use of night vision devices (NVDs) by motor vehicle operators. Night vision devices include image intensification and thermal imaging devices (less weapon sights).

8–2. Training strategy

a. Commanders will manage NVD training programs according to this regulation and other applicable publications (see para 8–3, and determine what type of night training program best supports the unit mission.

b. Commanders will establish speed limitations for all modes of driving with NVDs. In addition, commanders at all levels must understand the devices' limitations to conduct effective risk assessments for NVD training (see FM 21–305 and TC 21–305–2 for technical information on NVDs to assist in making these important decisions and assessments).

c. The ability to drive with night vision devices is a highly perishable skill. Proficiency can be developed and maintained only through continuous hands-on training. Units will conduct qualification and refresher training per guidance in paragraphs 8–5 and 8–6.

8–3. Training materials

The following are useful training materials:

a. FM 21–305, *Manual for the Wheeled Vehicle Driver:* night vision goggle (NVG) driving techniques and procedures, mission planning, safety factors, training programs, and guidance on unit standard operating procedures (SOPs) for wheeled vehicle, motorcycle, and ATV operators.

b. TC 21–305–2, *Training Program for Night Vision Goggle Driving Operations:* NVG lesson plans, training calendar, written exam, eye charts, and paper transparencies.

c. TC 21–306, *Tracked Combat Vehicle Driver Training:* Procedures for the tracked vehicle operator.

d. Technical Manuals (TMs) pertaining to specific types of NVDs provide maintenance and operator instructions.

8–4. Night vision device instructors

a. Instructor training for wheeled vehicles will comply with TC 21–305–2, and the guidelines in this chapter for qualification and refresher training.

b. Instructors must be NVD qualified, and licensed on the vehicles on which training is conducted, and must be designated in writing by the commander as certified NVD instructors.

c. Instructors will implement the commander's program, conduct qualification and refresher training, administer road tests, and keep the commander informed on the overall status of the unit's NVD profile.

d. Instructors will document qualification and refresher training on the individual's DA Form 348, section III, and annotate on the OF 346 and DA Form 348, section I, the specific type of NVD on which the individual is qualified.

8–5. Qualification training

Qualification training will include sequential instruction in both academic and night driving tasks. A qualified NVD instructor must supervise all instruction.

a. NVD academics. During NVD qualification, the operator will receive instruction in academic subjects (see app I) and must pass a written examination (see TC 21–305–2).

b. NVD driver training. The operator will receive hands-on instruction in order to demonstrate proficiency while driving with the use of NVDs (see app I for task list). An NVD-equipped instructor will be in the vehicle during night driver training.

c. Qualification requirements. To be qualified and licensed on NVDs, motor vehicle operators must—

P

CHAPTER 11

OPERATOR TRAINING

53. GENERAL:

a. Preliminary Operator Instruction: During this phase of the instruction, the student learns about the administrative procedures to be performed by the operator; how equipment is constructed, how to keep equipment operating properly, and how operating faults are detected and corrected. Instruction and training must be designed to allow student operators to:

(1) Gain sufficient experience operating equipment.

(2) Enable them to demonstrate (through performance) a general operational knowledge of proper operating of equipment, safety, and maintenance.

(3) Familiarize themselves with proper operation procedures.

The instructor and/or assistant instructor must assure that correct operating techniques are first demonstrated to the student before he attempts the exercise.

54. SUBJECTS TO BE TAUGHT:

a. Safety: AR 385-10 prescribes the Army's Safety Program. Emphasis must be placed on safety throughout the course of instruction/training. Three major areas for instruction are:

(1) Specific safety precautions that must be emphasized during the course of instruction.

(2) The constant instructions on safe practices throughout the training course.

(3) Instruction on reporting of accidents as set forth in AR 385-40, and local directives.

Additionally, all technical manuals contain specific safety instruction that are peculiar to the individual generator they reference. These instructions must be identified and instructed throughout the course.

b. The Army Maintenance System: The student ·erator will be taught the categories/levels of maintenance prescribed in AR 750-1, and how the system operates ·ıen carrying out maintenance functions. Instruction will cover procedures from the most simple preventative maintenance performed by the operator/crew to the complex overhaul/repair techniques employed at depot level The importance of the operator's/crew's position in organizational maintenance must be emphasized, and the student must be shown where and how the operator fits into the maintenance system/program. Students must also be told why a thorough knowledge of their job, and proper performance of the individuals duties are essential for an efficient organization.

c. Publications, Forms, Reports, and Equipment Records: The equipment operator is only directly concerned with those publications, forms reports, and equipment records used in daily operation and maintenance of equipment. Local standard operating procedures (SOPs) and directives may specify other records, forms, reports, etc, but at a minimum, the following equipment records will be identified, and taught by the instructor:

(1) DA Form 2404 Equipment Inspection and Maintenance Worksheet: This form is used to record equipment faults found during the operator's inspection. It will be used by all operators performing equipment inspections and checks.

(2) DD Form 1970 Motor Vehicle Utilization ord. This form supplies a record for the control of equipment usage, and is used to record data relative to the operation and status of equipment. This form is the official authorization for dispatch of your equipment.

Identical records are not maintained on all equipment. Therefore, the instructor must insure that emphasis is placed on those records prescribed in Appendix E, DA PAM 738-750, and local command directives for the specific equipment on which instruction/training is conducted.

d. Publications: The operator's manuals pertaining to the equipment is usually carried on the equipment, and contains detailed procedures for operation, operators maintenance and a description of the equipment and its components. Instruction to the student operator will include a detailed introduction to publications pertinent to operation, operator maintenance, and repair parts.

Use publications throughout the training course to insure the student operator will become thoroughly familiar with pertinent publications.

e. Lubrications Orders. There are lubrications orders published for every generator in the Army's inventory (ANNEX G). On gasoline engine driven (GED) generators, the lubrication order pertains only to the engine, on diesel engine driven generators (DED) it covers the entire generator set. (CHAPTER 13) Lubrication orders Identify the type

bricants to be used, intervals to be followed, special cautions to be observed, and what level of maintenance performs each ice. Services listed on the lubrication order are mandatory. Two areas must be covered in the training of student operators:

(1) Detailed instructions on the use of pertinent lubrication orders.

(2) Have the student perform a lubrication service to demonstrate understanding of the service.

f. Standard Form 46 (US Government Motor Vehicle Operator's Identification Card):

(1) The Standard Form 46 is issued to qualified operators by the Commanding Officer, or authorized supervisor. Facsimile signatures are authorized, but do not relieve the officer whose signature is used from responsibility against misuse (AR 340-15).

(2) The Standard Form 46 is stamped or marked "Army Learner" when issued to a student operator for use during the training course.

(3) The regular Standard Form 46 will be issued only to individuals who qualify by passing pertinent tests prescribed by AR 600-55, and satisfactorily completing the equipment operator qualification test.

g. DA Form 348 (Equipment Operator's Qualification Record):

(1) This form provides a means of recording the complete history of an individual's training and operating experience. All training, qualification, and testing dates will be entered together with the specific equipment qualified to operate in the appropriate blocks. This form is a permanent record maintained in the individual's 201 file and remains with the file when the individual is transferred. If an individual is assigned as an operator on a daily basis, DA Form 348 may be withdrawn and maintained by the Officer responsible for unit equipment operation (AR 385-55).

Standard Form 91 (Operator's Report of Motor Vehicle Accident):

(1) Use of Standard Form 91 is best taught by the practical exercise type of instructions. The student operator must pressed with the importance of the SF 91, and necessity for accuracy in filling it out. All operators must be able to fill out SF 91 erly before being issued a Standard Form 46.

h. Equipment Characteristics and Components:

(1) To become an efficient operator, the student must have a thorough knowledge of:

(a) he DOD Standard Family of Mobile Electric Generator Sets.

(b) Characteristics, basic principles and functions of major components pertaining to the equipment being erated.

(c) Inspections/checks, and preventive maintenance services that must be performed on the equipment to be operated.

(d) Prospective operators should receive instructions on their responsibilities applicable to the specific equipment on which the training is being conducted and their own organic equipment. Training will include, but is not limited to the following:

(1) Tabulated data

(2) Engine

(a) Lubrication system

(b) Fuel system

(c) Air intake system

(d) Electrical system

(e) Safety devices

(f) Exhaust system

(g) Cooling system

(h) Cold weather starting and operating procedures

(i) Controls and instruments

(j) Load connection and output system

(e) Only those maintenance functions authorized to be performed by the operator/crew, as listed in the maintenance allocation chart (MAC), the lubrication order, or the operating chapter in the Technical Manual will be instructed. The operator will not be trained to perform maintenance above his level.

i. Loads and Equipment: Prospective operators should be trained with the necessary tools, publications, and equipment required for the major end item operation and operator/crew maintenance. This phase of the instruction will familiarize the student operators with those items necessary at the operator level.

j. Fire prevention and fire fighting

(1) All prospective operators must be made aware of the danger of fire on or within the equipment to be operated. ..ags, spilled oil, gasoline, diesel fuel. and cleaning fluids in open container must be removed from the equipment prior to working on electrical components, or starting the engine. Emphasis must be place on fire prevention and proper use of fire extinguishers.

k. Washing and cleaning: Procedures for washing and cleaning are not identical on all equipment. Operator must be knowledgeable of the procedures in the pertinent equipment technical manual. In general, equipment is cleaned after each days operation, and during normal operations, should be washed on a weekly basis. Cleaning should be directed at:

(1) Spilled oil. grease, and fuel must be cleaned up immediately to prevent fire hazards.

(2) Mud, sticks and small stones that become lodged between the skirts and shrouds of the generator must be removed so the operator can make a thorough inspection.

55. Training the Operator

a. Operation of equipment

(1) The operator/crew should know how to perform every operation of which the generator is capable.

(2) Each exercise should be performed satisfactorily by the potential operator before going on to the next.

(3) Supervision must be strict to prevent any trial-and-error type operation and accidents.

(4) On each new exercise, and before the potential operator attempts the exercise, the instructor will demonstrate the correct procedure.

(5) During this phase of training, instruction must be designed:

(a) For the potential operator to apply knowledge gained during the preliminary training

(b) To permit the student to obtain sufficient operating experience.

(c) To enable the potential operator to follow the proper procedures and techniques in manipulating the controls, satisfactorily operate the equipment.

(d) For the potential operator to receive practical training initiating and completing DA Form 2404 (Equipment Inspection and Maintenance Work Sheet).

(6) Emphasis should be placed on (but not limited to) the following steps as applicable to the specific equipment on which the instruction/training is conducted:

(a) Safety

(b) Before, during and after preventive maintenance services (including procedures concerning extreme hot, and cold climate condition).

(c) Operating instructions as outlined in the applicable technical manual.

(d) Starting, warm up, and stopping procedures, to include cold weather and electrical slave starting.

NOTE

The starting, warm up, and stopping procedures are not identical for all generators. Procedures prescribed in the pertinent equipment technical manual will be taught.

(e) Instruments and manipulation of controls (how they work, and what each signifies).

Q

Army Regulation 420–49

Facilities Engineering

Utility Services

Headquarters
Department of the Army
Washington, DC
28 April 1997

UNCLASSIFIED

plan. The plan will document current utility practices; evaluate current and future installation and tenant needs based on installation mission, size, economic and environmental considerations; identify required resources; and outline a strategy to implement the selected program options. The IUMP will include utility system maps and sections on energy, solid waste management, corrosion control, and emergency response, as well as other plans required by this regulation. Guidance on preparing the plan is in Public Works Bulletin (PWB) 420–10–08 and Engineers Technical Letter (ETL) 1110–3–404.

e. Installations will conduct utility vulnerability analyses and prepare remedial action plans to ensure mission support in event of disruption to major utility systems.

f. Installations will develop and implement emergency response plans for each type of utility service. The DPW will develop these plans in coordination with the local utility, the provost marshal, and the installation emergency and disaster relief activities.

g. Installations should participate in local and regional utility resource planning organizations to become a good neighbor and partner in helping solve utility issues.

h. All large repair, alteration, and Military Construction, Army (MCA), projects for utility services will include an analysis of privatization opportunities.

i. Nonappropriated fund (NAF) facilities are defined as "Federal Buildings" and will be managed in compliance with all applicable energy and water conservation laws and regulations.

2–2. General

a. Operation, maintenance, and repair of utility systems and facilities will be in accordance with AR 420–10 and DA PAM 420–8.

b. Construction projects will be in accordance with AR 415–15 and AR 420–10. Where required by Federal or State law, construction projects will be submitted to State regulatory authorities for review prior to being included in the Military Construction Program budget request.

c. Environmental protection and enhancement and hazardous, toxic, and radioactive waste management will be in accordance with AR 200–1.

d. Energy conservation programs and reduction targets will be in accordance with AR 11–27.

e. Contracts for the acquisition and resale of utility services will be in accordance with AR 420–41 and AR 215–1.

f. Installation master planning will be in accordance with AR 210–20.

g. All excavations, including fence post holes (regardless of by whom made), will be coordinated with the DPW. Locations of all underground lines will be verified and all permits will be obtained prior to beginning work.

h. The most LCC effective approach will be performed in accordance with AR 11–18 and the Memorandum of Agreement on Criteria/Standards For Economic Analyses/Life Cycle Costing For MilCon Design.

2–3. Safety and occupational health

Utility systems and facilities will be designed, operated, and maintained so as to protect the health and safety of the military and civilian work force in accordance with AR 385–10.

2–4. Utility plant operators

Utility plant operators and maintenance and supervisory personnel will be provided sufficient training to operate and maintain the utility plants in a safe, reliable, and efficient manner. Utility plant operators and maintenance personnel will meet Federal, State, local or host nation certification requirements for the State or host nation in which they are located.

a. Operator training and certification. Utility operators will be trained and certified in accordance with applicable existing Federal, State, local, or host nation standards. In the absence of Federal, State, local, or host nation certification requirements for boiler plant operators, the Fourth Class Power Engineer Certification Program of the National Institute for the Uniform Licensing of Power Engineers, Inc., will be the governing requirement.

b. Installations with gas. Installations with gas (natural gas, manufactured gas, and vaporized liquified petroleum gas (LPG) products; that is, propane and propane/air mixtures) distribution systems will establish procedures to provide training for personnel working on or involved with the design, construction, or management of these systems. The training will provide all personnel with general knowledge of part 192, title 49, of the Code of Federal Regulations (49 CFR 192). The training will also provide specific knowledge and capabilities to individuals in the areas of their assigned duties relating to the functions identified in 49 CFR 192. Special training, such as welding of steel gas pipe and joining plastic pipe by fusion or operation and utilization of gas leak detection equipment, will be obtained from sources qualified to teach these subjects. Contracts involving gas systems will specify that only qualified gas system workers will be used.

Chapter 3
Solid Waste Management

3–1. Solid waste management policy

This chapter establishes policy and criteria for the operation, maintenance, repair, and construction of facilities and systems for efficient and economical solid (non-hazardous) waste management including source reduction, re-use, recycling, composting, collection, transport, storage, and treatment of solid waste.

a. Solid waste management (SWM) will be in accordance with the Solid Waste Disposal Act (SWDA) of 1976, as amended, 42 U.S.C. 6901, et seq. (commonly referred to as the Resource Conservation and Recovery Act (RCRA)), the National Environmental Policy Act (NEPA) (42 U.S.C.A. 4321, et seq.), and applicable Environmental Protection Agency (EPA), State, and local regulations and requirements.

b. Regulated medical waste management will be in accordance with AR 40–5 and AR 40–61.

c. Operations, maintenance, and repair of SWM facilities and/or equipment for collection, handling, and compacting will be in accordance with AR 420–18 and TM 5–634.

d. Design criteria and standards for sanitary landfills will be in accordance with 40 CFR 258 and the U.S. Army Corps of Engineers architectural and engineering instructions (AEI).

e. Army-owned and -operated SWM facilities (landfills, incinerators, recycling centers, and so forth) will not be used as a municipal or regional SWM facility or as the SWM facility for surrounding communities.

f. Solid waste dumping at unauthorized sites is prohibited. Unauthorized dump sites will be controlled and mitigated in accordance with the integrated solid waste management plan. Scavenging and picking through refuse in containers, dumpsters, or landfills is prohibited.

3–2. Integrated solid waste management

a. Army solid waste policy is based on the concept of Integrated Solid Waste Management (ISWM). Planning for ISWM is designed to minimize the initial input to the waste stream through source reduction, reducing the volume of the waste stream requiring disposal through re-use and recycling, and finally disposing of solid waste through the effective combination of composting, incineration, or landfill treatment. Full implementation of the ISWM concept and the coordinated evaluation of all elements of the solid waste stream from source generation to disposal will result in an effective installation SWM program.

b. Installations will develop and implement an installation ISWM plan. The installation ISWM plan will document current waste management practices; evaluate current and future needs based on installation mission, size, and economic and environmental considerations; identify required resources; and outline a strategy to implement the selected program options. The installation ISWM

R

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON GEORGIA 30905-5000

ATZH-DIC

13 March 2000

MEMORANDUM FOR Commander, U.S. Army Engineering and Support Center, Huntsville, ATTN: CEHNC-PM-CR (Mr. Pearsall), 4820 University Square, Huntsville, AL 35816-1822

SUBJECT: Contracting Officer Representative

1. I recommend Glenn Stubblefield, Jr. to perform COR duties for contract No. DACA87-97-D-0015. Mr. Stubblefield successfully completed the contracting officer representative course through the U.S. Army Logistics Management College. In addition, Mr. Stubblefield has experience with lighting retrofits that were performed by the Center for Public Works.

2. Also, the Huntsville contracting office is requested to provide specific discussion items to address at the pre-construction conference. Data Item Description BW007, " Preliminary Project Meeting" provides a partial list of items that should be discussed during the pre-construction meeting. Input from the contracting office will ensure that all pertinent areas are addressed.

3. The point of contact for this effort is Glenn Stubblefield, Jr. He can be reached at 706-791-6184 or stubbleg@gordon.army.mil.

CURTIS D. OGLESBY
Chief, FEB, PWD, DPW

COPY

DEPARTMENT OF THE ARMY
HUNTSVILLE CENTER, CORPS OF ENGINEERS
P.O. BOX 1600
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO ATTENTION OF:
CEHNC-CT-S (715)

MEMORANDUM FOR Headquarters United States Army Signal Center and Fort Gordon, ATTN: ATZH-DIC/Mr. Glenn Stubblefield, Jr., Fort Gordon GA 30905-5000

SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015/Fort Gordon

1. Designation. Pursuant to the provisions of AFARS 42.90, you are hereby designated as the Contracting Officer's Representative (COR) in the administration of subject contract. This appointment is contingent upon completion of a COR training program. It will be revoked six months after the date of this letter if a copy of your training certificate is not received by the Huntsville Center contracting office.

a. Contract number DACA87-97-D-0015 was awarded to ERI Services Inc. as an energy savings performance contract. A copy of the contract is enclosed.

b. This designation shall remain in effect through the life of the contract unless sooner revoked by the Contracting Officer. Such termination of the designation shall be in writing. If your designation is revoked for any reason before the completion of this contract, you must turn over your COR records to the designated successor COR or obtain other disposition instructions from the Contracting Officer. If you are reassigned or retire from your current position, you shall request from the Contracting Officer termination and relief from your duties sufficiently in advance of reassignment or retirement to permit timely selection and designation of a successor COR. You may not redelegate your COR authority.

2. Authority. You are authorized by this designation to take any or all action with respect to the following which could lawfully be taken by me as Contracting Officer, except any action specifically prohibited herein or by the terms of subject contract. Your general responsibilities include the following:

CEHNC-CT-S
SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015/Fort Gordon GA

4. You are further required to maintain adequate records to sufficiently describe the performance of your duties as Contracting Officer's Representative during your tenure and to distribute such records as applicable. As a minimum, the COR file shall contain the following:

a. A copy of your letter of appointment from the Contracting Officer.

b. A copy of the contract or the appropriate part of the contract and all modifications thereto.

c. A copy of the applicable quality assurance (QA) surveillance plan.

d. Record of inspections performed and their results.

e. Memoranda for record or minutes of any meetings and discussions with the contractor, or others, pertaining to the contract or contract performance.

f. Names and position titles of individuals who are functioning as technical and administrative assistants.

5. All personnel engaged in contracting and related activities shall conduct business dealings with industry in a manner above reproach in every aspect and shall protect the U.S. Government's interests, as well as maintain its reputation for fair and equal dealings with all contractors. DOD Directive 5500.7-R sets forth applicable standards of conduct for all personnel directly and indirectly involved in contracting.

6. Any COR who may have a direct or indirect financial interest that would place him or her in a position where there is a conflict between his or her private interests and the public interests of the United States shall advise his or her supervisors and the contracting Officer of the conflict so that appropriate actions may be taken. A COR shall avoid the appearance of such conflict to maintain public confidence in the U.S. Government's conduct of business with the private sector.

CEHNC-CT-S
SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015/Fort Gordon GA

7. Receipt of COR Designation. You are required to acknowledge receipt of this appointment on the original copy, and return it to the Contracting Officer for distribution and retention in the contract file. Your signature also serves as certification that you have read and understand the contents of DOD Directive 5507-R. A duplicate copy shall remain in your file.

Donna L Bliss

Donna L. Bliss
Contracting Officer

Enclosure:
Contract DACA87-97-D-0015
w/modifications

Receipt of appointment as Contracting Officer's Representative (COR) on Contract DACA87-97-D-0015 is hereby acknowledged:

Name (Print/Type)	Signature
Title	Date
Rank/Grade	Telephone

COPY

DEPARTMENT OF THE ARMY
HUNTSVILLE CENTER, CORPS OF ENGINEERS
P.O. BOX 1600
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO
ATTENTION OF:

CEHNC-CT-S (715) JUL 24 2001

MEMORANDUM FOR Headquarters U.S. Army Signal Center and Ft. Gordon, ATTN: ATZH-DIC/Mr. James V. Pavliscsak, Directorate of Public Works, Fort Gordon, GA 30905-5040

SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015, Task Order 0002

1. Designation. Pursuant to the provisions of AFARS 42.90, you are hereby designated as the Contracting Officer's Representative (COR) in the administration of subject contract.

a. Contract number DACA87-97-D-0015, task order 0002 was awarded to NORESCO, LLC (formerly ERI Services, Inc.) as an energy savings performance contract. A copy of the task order is enclosed.

b. This designation shall remain in effect through the life of the contract unless sooner revoked by the Contracting Officer. Such termination of the designation shall be in writing. If your designation is revoked for any reason before the completion of this contract, you must turn over your COR records to the designated successor COR or obtain other disposition instructions from the Contracting Officer. If you are reassigned or retire from your current position, you shall request from the Contracting Officer termination and relief from your duties sufficiently in advance of reassignment or retirement to permit timely selection and designation of a successor COR. You may not redelegate your COR authority.

2. Authority. You are authorized by this designation to take any or all action with respect to the following which could lawfully be taken by me as the Contracting Officer, except any action specifically prohibited herein or by the terms and subject contract. Your general responsibilities include the following:

a. Verify that the contractor performs the technical requirements of the contract in accordance with the contract terms, conditions, and specifications. Authority to approve or disapprove contractor submittals that do not directly impact the delivery schedule, funding, or scope of work.

b. Perform, or cause to be performed, inspections necessary in connection with paragraph 2, above, and verify that the contractor has corrected all deficiencies.

CEHNC-CT-S
SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015, Task Order 0002

c. Maintain liaison and direct communications with the contractor. Written communications with the contractor and other documents pertaining to the contract shall be signed as "Contracting Officer's Representative" with a copy furnished to the Contracting Officer.

d. Monitor the contractor's performance and notify the contractor of deficiencies observed during surveillance, and direct appropriate action to effect correction. Record and report to the contracting officer incidents of faulty or nonconforming work, delays, or problems. In addition, you are required to submit a monthly report concerning performance of services rendered under this contract.

e. Coordinate site entry for contactor personnel and ensure that any Government Furnished Property (GFP) is available when required.

3. You must adhere to the following limitations:

a. You are not empowered to award, agree to, or sign any contract (including task orders) or modification thereto, or in any way obligate the payment of money by the Government.

b. You may not take any action that may impact the contract or task order schedules, funds, or scope.

c. You may not make any contractual agreements, commitments, or modifications that involve prices, quantities, quality or delivery schedules. The Contracting Officer shall make these only.

4. You are further required to maintain adequate records to sufficiently describe the performance of your duties as Contracting Officer's Representative during your tenure and to distribute such records as applicable. As a minimum, the COR file shall contain the following:

a. A copy of your letter of appointment from the Contracting Officer.

b. A copy of the contract or the appropriate part of the contract and all modifications thereto.

c. A copy of the applicable quality assurance (QA) surveillance plan.

d. Record of inspections performed and their results.

e. Memoranda for record or minutes of any meetings and discussions with the contractor, or others, pertaining to the contract or contract performance.

CEHNC-CT-S
SUBJECT: Designation of Contracting Officer's Representative for Contract DACA87-97-D-0015, Task Order 0002

f. Names and position titles of individuals who are functioning as technical and administrative assistants.

5. All personnel engaged in contracting and related activities shall conduct business dealings with industry in a manner above reproach in every aspect and shall protect the U.S. Government's interests, as well as maintain its reputation for fair and equal dealings with all contractors. DOD Directive 5500.7-P, sets forth applicable standards of conduct for all personnel directly and indirectly involved in contracting.

6. Any COR who may have a direct or indirect financial interest that would place him or her in a position where there is a conflict between his or her private interests and the public interests of the United States shall advise his or her supervisors and the Contracting Officer of the conflict so that appropriate actions may be taken. A COR shall avoid the appearance of such conflict to maintain public confidence in the U.S. Government's conduct of business with the private sector.

7. Receipt of COR Designation. You are required to acknowledge receipt of this appointment on the original copy, and return it to the Contracting Officer for distribution and retention in the contract file. Your signature also serves as certification that you have read and understand the contents of DOD Directive 5507-R. A duplicate copy shall remain in your file.

Carol T Sargent

CAROL T. SARGENT
Contracting Officer

Enclosure:
Contract DACA87-97-D-0015
Task Order 0002 w/ modifications

Receipt of appointment as Contracting Officer's Representative (COR) on Contract DACA87-97-D-0015, Task Order 0002, is hereby acknowledged:

Name (Print/Type) _____ Signature _____

Title _____ Date _____

Rank/Grade _____ Telephone _____

QUALITY ASSURANCE (QA) SURVEILLANCE PLAN (QAP)

REQUIRED SERVICE	PARAGRAPH NUMBER	STANDARD	MAXIMUM ALLOWABLE DEVIATION	METHOD OF SURVEILLANCE	DEDUCTION FROM CONTRACT PRICE
PROVIDE GENERATOR OPERATIONS AND MAINTENANCE					
Emergency Power	Scope E,1, c Proposal 13,26 of 46	Provide emergency power as needed	0%	100% evaluation	
Interruptible Service (IS)	Scope E,1, a Proposal 9,12,22 of 46	Curtail commercial power to 9.9mw	0%	100% evaluation	
RTP hour ahead	Scope E,1, b	Curtail Area1 power usage as required	0%	Unscheduled evaluation	
RTP day ahead	Scope E,1, b Proposal 21 of 46	Curtail Area2 power usage as required	0%	Unscheduled evaluation	
Daily, weekly monthly quarterly and semi-annual maintenance	Scope E,3 Scope E,4	Perform preventive and periodic maintenance required	0%	Unscheduled evaluation	
Annual maintenance	Scope E,5	Perform annual maintenance	0%	100% evaluation	
Logs and records	Scope E,5,d,iv E,5,f,ii E,5,iii E,5,g,iii E,11 Proposal 8 of 46	Maintain logs, records, and deliverables as required	0%	Unscheduled evaluation and inspection	
PROVIDE UMCS OPERATIONS AND MAINTENANCE					
Customer service	Scope B,1 Scope B,3 Scope B,8	Provide courteous and responsive service	5%	Unscheduled log evaluation and validated customer complaints	
Time Of Day Schedules	Scope B,5	Maintain TODS up to date			
Control algorithms	Scope B,5 Proposal 11 of 46	Maximize control algorithms to provide cost effective service achieving maximum savings	5%	Unscheduled evaluation, validated customer complaints and random sampling	
Displays	Scope B,5	Maintain using fixed standard for buildings providing required information and easy readability	5%	Unscheduled evaluation, validated customer complaints and random sampling	
Chill Water storage	Proposal 23 of 46	Operate chill water storage	0%	Unscheduled evaluation	

REQUIRED SERVICE	PARAGRAPH NUMBER	STANDARD	MAXIMUM ALLOWABLE DEVIATION	METHOD OF SURVEILLANCE	DEDUCTION FROM CONTRACT PRICE
Software	Scope C,12 Proposal 43 of 46	Provide patches, fixes, and updates	0%	100% evaluation validated customer complaints	
Calibration and checkout	Scope C,2 Scope C,3	Perform annual point to point	1%	Unscheduled evaluation and random sampling	
Maintenance and Repairs	Scope C	Provide repair services	1%	Unscheduled evaluation and random sampling	
New work	Scope C,1,b	Provide minor new work	0%	Unscheduled evaluation	
Logs and records	Proposal 39,41,42 of 46 Section C:8.3.3 C:7.13	Maintain logs, records, and deliverables as required	0%	Unscheduled evaluation and inspection	
PERSONNEL					
Personnel On site	Scope G,1 Scope G,5	Provide manpower	0%	100% evaluation	
Remote Coverage	Scope H	Provide 24 hour service	0%	100% evaluation validated customer complaints	
SOP's	Scope B,13 Section C:6.1.8	Provide SOP	0%	Unscheduled evaluation/review	
Training	Scope C,11 Section C:6.1.8	Provide training	0%	Unscheduled evaluation	
See Proposal page 26 of 46					

MONTHLY REPORT

1. QUALITY OF PRODUCT OR PERFORMANCE
   a. Compliance with contract requirements:
   b. Accuracy of contractor reports:
   c. Appropriate personnel assigned to perform the work on contract:
   d. Technical excellence:

2. COST CONTROL
   a. Within budget (over/under):
   b. Accuracy and quality of billings:
   c. Relationship of negotiated cost to actual cost:
   d. Cost efficiencies:

3. TIMELINESS OF PERFORMANCE
   a. Met established interim milestones:
   b. Responsive to technical direction:
   c. Completion of on time activities:
   d. Liquidated damages assessed:

4. CUSTOMER SATISFACTION
   a. Effective management
   b. Businesslike correspondence
   c. Responsive to contract requirements
   d. Prompt notification of problems
   e. Reasonable/cooperative
   Flexible
   g. Proactive
   h. Effective contractor-recommended solutions
   i. Followed through with socio/economic provisions of the contract

COR REQUIREMENTS CHECKLIST

AUTHORITY:

Verify that the contractor performs the technical requirements of the contract.
. Approve minor submittals.
3. Perform inspections
4. Verify deficiencies corrected.
5. Maintain liaison and direct communications with the contractor.
6. Sign documents "Contracting Officer's Representative".
7. Furnish copies of Documents to the Contracting Officer.
8. Monitor the contractors performance.
9. Notify Contractor of deficiencies observer during surveillance.
10. Direct appropriate action to effect corrections to deficiencies.
11. Record and report to KO incidents of faulty or nonconforming work, delays, or problems.
12. Submit a monthly report concerning performance of services rendered under contract.
13. Coordinate site entry for contractor personnel.
14. Ensure any GFE is available when required.

LIMITATIONS

1. Do not award, agree to, or sign any contract or modification to in any way obligate the payment of money by the Government.
2. Do not take any action that may impact the contract or task order schedules, funds, or scope.
3. Do not make any contractual agreements, commitments, commitments, or modifications that involve prices, quantities, quality, or delivery schedules.

MAINTAIN RECORDS

1. Letter of appointment.
2. Copy of the contract or the appropriate parts of the contract and all modifications.
3. Copy of the applicable quality assurance (QA) surveillance plan.
4. Record of inspections performed and results.
5. Memoranda for record or minutes of any meetings and discussions with the contractor or others pertaining to the contract or contract performance.
6. Copy of names and position titles of individuals who are functioning as technical and administrative assistants.

INSPECTION REPORT

TO: US Army Engineering and Support Center, Huntsville
ATTN: Carol Sargent

FROM:

CONTRACT NUMBER: DACA-87-97-0015

CONTRACTOR: NORESCO, LLC

Type of Service Being Accomplished: TASK ORDER 0005, ECSM #2

INSPECTION PERIOD:

SUMMARY OF INSPECTION DURING THIS PERIOD

a. Is Contractor performing in accordance with specifications?

b. Quality of Work:

c. Timely Performance:

d. Discrepancy Noted:

e. Action Being Taken By Contracting Officer for Necessary Action to Correct Discrepancies:

f. Recommendation to Contracting Officer for Necessary Action to Correct Discrepancies:

Date:

COR/Inspector: James V. Pavliscsak

ACTION TAKEN BY CONTRACTING OFFICER/CONTRACT ADMINISTRATION:

Date: Adminsitrator/Contracting Officer:

E copy
FH Form 1670-1
21 Jan 94 (AFZA-DC)_

S

NORESCO
ERI Services Division

Fort Gordon, UMCS
Augusta, GA
Emergency Generator CBL

ESPC Progress Meeting
Contract No. DACA87-97-D-0015

M E E T I N G N O T E S

MEETING NO. 1
Weekly Progress Meeting
Monday, July 9, 2001, 1030 hrs
Fort Gordon, Building 14600

Distribution List:

Name	Company	Phone Number	Fax Number	E-mail
Pat Arthur	Ft. Gordon	706-791-6183	706-791-4222	arthurj@gordon.army.mil
* Forrest Garner	Ft. Gordon	706-791-4246	706-791-4222	garnerf@gordon.army.mil
Curtis Oglesby	Ft. Gordon	706-791-4243	706-791-4222	oglesbyc@gordon.army.mil
* James Pavliscsak	Ft. Gordon	706-791-4148	706-791-4222	pavliscj@gordon.army.mil
Glenn Stubblefield	Ft. Gordon	706-791-6184	706-791-4222	stubbleg@ gordon.army.mil
* Scott Pierson	JCWS			
* John Stringfield	JCWS	706-791-6087		stringfj@gordon.army.mil
* Peter Batayias	NORESCO	706-793-4009	706-793-4280	pbatayias@noresco.com
Ben Hatcher	NORESCO	912-318-4606		bhatcher@noresco.com
George Kobrock	NORESCO	203-335-0266	203-335-2490	gkobrock@noresco.com
David Leach	NORESCO	617-542-8567	617-338-2563	dleach@noresco.com
Paul Pimentel	NORESCO	617-542-8567	617-338-2563	ppimentel@noresco.com
Jerry Reilley	NORESCO	203-335-0266	203-335-2490	jreilley@noresco.com
Rick Rogers	NORESCO	404-223-5300	404-223-5700	rrogers@noresco.com
Scott Silver	NORESCO	413-582-6759	413-582-6759	ssilver@noresco.com
Jason Stone	NORESCO	617-542-8567	617-338-2563	jstone@noresco.com

*Attended Meeting

Agenda:

1. Make introductions
2. Discuss new business

Special Note:

ERI Services, Inc., recently announced its merger with NORESCO, another Equitable Resources company. From here forward, ERI will be referred to as NORESCO, ERI Services Division (NORESCO).

Action Items:

Item No.	Discussion	Action	Contact	Target Date
07/09/01-001	INTRODUCTIONS Introductions were made. Members of the project team include: - James Pavliscsak, COR, Ft. Gordon - Forest Garner, COR, Ft. Gordon (filling in for P. Arthur)			

N O R E S C O
ERI Services Division

Item No.	Discussion	Action	Contact	Target Date
	- Pat Arthur, COR, Johnson Controls World Services (JCWS) - Peter Batayias, Project Manager, NORESCO - John Stringfield, Foreman, Johnson Controls World Services (JCWS) - Scott Pierson, Mechanic, Johnson Controls World Services (JCWS)			
07/09/01-002	**WORK ETHIC** J. Pavliscsak stated that NORESCO and JCWS are to work together on HVAC issues in a cooperative and professional manner. As an example, he requested that NORESCO assist JCWS in troubleshooting by utilizing the Utilities Monitoring and Control System (UMCS). All parties agreed and will pass the information on to any team members not present.			
07/09/01-003	**HVAC ISSUES** P. Batayias and J. Stringfield made arrangements to meet at Building 18400, Gordon Club, to discuss HVAC issues.			

The next meeting will be announced at a later date.

This memorandum will become part of the project record. Please notify P. Batayias of any revisions within 5 days of receipt of these notes.

NORESCO
ERI Services Division

Fort Gordon, UMCS
Augusta, GA
Emergency Generator CBL

ESPC Progress Meeting
Contract No. DACA87-97-D-0015

MEETING NOTES

MEETING NO. 28
Weekly Progress Meeting
Wednesday, March 6, 2002, 1330 hrs
Fort Gordon, Building 14600

Distribution List:

Name	Company	Phone Number	Fax Number	E-mail
Pat Arthur	Ft. Gordon	706-791-6183	706-791-4222	arthurj@gordon.army.mil
Forrest Garner	Ft. Gordon	706-791-4246	706-791-4222	garnerf@gordon.army.mil
Curtis Oglesby	Ft. Gordon	706-791-4243	706-791-4222	oglesbyc@gordon.army.mil
* James Pavliscsak	Ft. Gordon	706-791-4148	706-791-4222	pavliscj@gordon.army.mil
Glenn Stubblefield	Ft. Gordon	706-791-6184	706-791-4222	stubbleg@gordon.army.mil
Scott Pierson	JCWS			
John Stringfield	JCWS	706-791-6087		stringfj@gordon.army.mil
Russ Pearsall	COE	256-895-1460	256-895-1172	russell.l.pearsall@hnd01.usace.army.mil
* Peter Batayias	NORESCO-ERI	706-793-4009	706-793-4280	pbatayias@noresco.com
Ben Hatcher	NORESCO-ERI	912-318-4606		bhatcher@noresco.com
George Kobrock	NORESCO-ERI	203-335-0266	203-335-2490	gkobrock@noresco.com
Dennis Koniecki	NORESCO-ERI	678-462-3101	770-957-4737	dkoniecki@aol.com
David Leach	NORESCO-ERI	617-542-8567	617-338-2563	dleach@noresco.com
Paul Pimentel	NORESCO-ERI	617-542-8567	617-338-2563	ppimentel@noresco.com
Jerry Reilley	NORESCO-ERI	203-335-0266	203-335-2490	jreilley@noresco.com
Jon Rocheleau	NORESCO-ERI	207-338-6539	207-338-4011	jrocheleau@noresco.com
Rick Rogers	NORESCO-ERI	404-223-5300	404-223-5700	rrogers@noresco.com
Scott Silver	NORESCO-ERI	413-582-6759	413-582-6759	ssilver@noresco.com
Jason Stone	NORESCO-ERI	617-542-8567	617-338-2563	jstone@noresco.com

*Attended Meeting

Agenda:

1. Review existing business
2. Discuss new business

Action Items:

Item No.	Discussion	Action	Contact	Target Date
07/17/01-008	DEFICIENCY LIST J. Reilley asked J. Pavliscsak about the outstanding issues. J. Pavliscsak stated that there were issues that needed clarification. P. Batayias stated that clarifying these issues would take time and that it is an ongoing process. **08/02/01:** Both parties will discuss at a later			

Item No.	Discussion	Action	Contact	Target Date
	date. 08/08/01: Both parties agreed to discuss the deficiency list on 08/14/01 at 1300 hrs. This meeting is tentative. 08/15/01: J. Pavliscsak asked P. Batayias to send an email to him suggesting a time to meet. If convenient for both, a meeting will take place. 08/22/01: J. Pavliscsak asked when NORESCO-ERI would be able to finalize the deficiency list. P. Batayias stated that the discussion would take place at the next meeting (08/29/01). J. Pavliscsak agreed. 08/29/01: The deficiency list was covered by J. Pavliscsak and P. Batayias. Three items remain open. These items will be clarified before the next meeting. 09/05/01: P. Batayias and J. Pavliscsak discussed the three remaining items. P. Batayias stated that the deficiency list will be sent out during the week of 09/10/01. 09/12/01: P. Batayias sent a copy of the UMCS deficiencies to J. Pavliscsak for review. J. Pavliscsak will review the draft copy. 09/19/01: J. Pavliscsak has not reviewed the draft copy. 09/26/01: J. Pavliscsak has not reviewed the draft copy. 10/05/01: J. Pavliscsak reviewed the draft copy. J. Pavliscsak and P. Batayias discussed all deficiencies. A final draft will be reviewed and released after the next meeting, 10/17/01. J. Pavliscsak asked P. Batayias if Item 12, page 2 (Comm lines in the 21,000 25,000, and 29,000 areas bad cables) could be placed on a map for future reference. P. Batayias agreed to have cables annotated on map. 10/17/01: Item 12, page 2 (Comm lines in the 21,000, 25,000, and 29,000 areas bad cables) were annotated on map. P. Batayias and J. Pavliscsak reviewed deficiency list. P. Batayias stated that he had questions concerning six buildings. J. Pavliscsak suggested that they meet at the buildings in question. P. Batayias agreed that this should take place before the next meeting, 10/24/01. 10/24/01: J. Pavliscsak and P. Batayias reviewed the final draft of the deficiency list. 10/31/01: No discussion. 12/13/01: The UMCS deficiency list was discussed. J. Pavliscsak stated that he would discuss two items with C. Oglesby. P.			

Item No.	Discussion	Action	Contact	Target Date
	Batayias stated that he would address eight items. 12/19/01: Item pending. 01/09/02: The UMCS deficiency list was discussed. J. Pavliscsak stated that he would discuss two items with C. Oglesby. P. Batayias stated that he had only one item left to address. 01/16/02: The UMCS deficiency list was discussed. J. Pavliscsak stated that he discussed the two items with C. Oglesby. J. Pavliscsak stated that he will discuss the issues with C. Oglesby again and possibly send to Huntsville for a decision. P. Batayias stated that he has addressed all items and would be forwarding a copy to J. Pavliscsak. 01/23/02: The UMCS deficiency list was discussed. J. Pavliscsak stated that he discussed the two items with C. Oglesby and that they will be forwarding their comments to the Contracting Officer. P. Batayias reported that he emailed an updated deficiency list to J. Pavliscsak today and gave him a hard copy at the meeting. 01/30/02: J. Pavliscsak stated that he received the deficiency list via email on 01/23/02 and is in the process of reviewing it. P. Batayias and J. Pavliscsak reviewed a preliminary layout of the network segments. More information to follow. 02/06/02: J. Pavliscsak stated that he is in the process of reviewing the UMCS deficiency list. P. Batayias and J. Pavliscsak discussed the network segments. More information to follow. J. Pavliscsak stated that there is a new Contracting Officer and that they are transitioning. 02/13/02: [*Correction: The last sentence in the previous entry was inadvertently placed in Item 018 in the Meeting No. 24 notes. It is now correct.*] The UMCS deficiency list was discussed. J. Pavliscsak stated that he is waiting for comments from Huntsville. P. Batayias stated that he is continuing to work on the network segments. More information to follow. 02/20/02: P. Batayias stated that he is continuing work on the network segments and will provide a proposal during the week of 02/25/02. 02/27/02: P. Batayias stated that he is continuing work on network segments. As			

Item No.	Discussion	Action	Contact	Target Date
	stated in the deficiency list distributed by D. Leach on 02/25/02, NORESCO will provide a proposal by 03/08/02. J. Pavliscsak stated that he is awaiting comments from Huntsville.	NORESCO	P. Batayias	03/08/02
08/02/01-018	**CHW STORAGE** Information put out by J. Stone. No feedback from Huntsville. Do not have NTP. There was no discussion. 08/08/01: J. Pavliscsak reported that he spoke with the COE and that the contractor would be bring someone for the pump alignment. There is no date for repair. Also, J. Pavliscsak requested that NTP be spelled out, i.e., Notice To Proceed. 08/15/01: J. Pavliscsak stated that the pumps have been aligned. R. Rogers and J. Pavliscsak discussed the content of the CWS Tank scope of work. R. Rogers agreed to modify and send out for approval. 08/22/01: Awaiting Notice to Proceed from COE, Huntsville, AL. 08/29/01: Awaiting Notice to Proceed. 09/05/01: Awaiting Notice to Proceed. 09/12/01: Awaiting Notice to Proceed. 09/19/01: P. Batayias reported that J. Rocheleau would arrive this evening to begin the commissioning process. 09/26/01: J. Rocheleau was on-site; a problem occurred with one of the pumps. 10/05/01: P. Batayias stated that JCWS had previously opened the pump for inspection. J. Pavliscsak stated that the COE was working on the issue. J. Pavliscsak asked for the current status of commissioning, i.e., is NORESCO-ERI going to commission with one pump? J. Pavliscsak stated that it would be six to eight weeks before there would be an answer on the pump in question. 10/17/01: J. Pavliscsak stated that there was no change and asked if NORESCO-ERI was going to commission with one pump. P. Batayias will inquire as to the status of commissioning. 10/24/01: J. Pavliscsak stated that there was no change and asked if NORESCO-ERI was going to commission with one pump. P. Batayias responded that NORESCO-ERI would not be commissioning with one pump. There would be additional costs incurred, because NORESCO-ERI would have to commission the other pump when repaired. 10/31/01: P. Batayias asked J. Pavliscsak if			

Item No.	Discussion	Action	Contact	Target Date
	he would like NORESCO-ERI to commission with one pump. P. Batayias stated that there would be additional costs incurred, due to the fact that NORESCO-ERI would have to return and commission the other pump when repaired. J. Pavliscsak stated that he does not want NORESCO-ERI to commission with one pump if there will be additional cost incurred. 11/07/01: J. Pavliscsak anticipates that the pump will be repaired during the week of 11/12/01. 11/14/01: J. Pavliscsak stated that he has not received any word on pump status. 12/13/01: J. Pavliscsak stated that the pump has been repaired. However, there are problems with the variable speed drive that need to be addressed. 12/19/01: J. Pavliscsak stated that the variable speed drive still needs to be addressed. 01/09/02: No change. 01/16/02: No change. 01/23/02: J. Pavliscsak reported that he forwarded D. Konecki's email to the Corp of Engineers. 01/30/02: J. Pavliscsak stated that he sent an email to Huntsville and that Huntsville and Savannah Corp of Engineers are discussing the issue. J. Pavliscsak received the January pay request submitted by NORESCO and has sent an email to Huntsville inquiring about the approval process. 02/06/02: J. Pavliscsak stated that he has not yet received any information from Huntsville regarding the payment request. ~~J. Pavliscsak stated that there is a new Contracting Officer and that they are transitioning.~~ 02/13/02: [*Correction: The last sentence in the previous entry was inadvertently inserted in this item. It is being struck from this record and relocated to Item 008.*] J. Pavliscsak stated that he is not the COR for this project. No reply on January payment request as of yet. 02/20/02: No change. 02/27/02: J. Pavliscsak received the VFD manual via email from NORESCO. J. Pavliscsak stated that a COE representative would be at Fort Gordon on 02/28/02 to check out the drive. 03/06/02: J. Pavliscsak and a COE representative checked the VFD, which is			

Item No.	Discussion	Action	Contact	Target Date
	operational. P. Batayias stated that D. Leach is in the process of scheduling personnel for commissioning. J. Pavliscsak expressed concern over the chill water storage tank displays and asked if they will show operation and be user friendly. P. Batayias will address this issue during commissioning.	NORESCO	P. Batayias	
08/29/01-037	**SAFETY PROGRAM** J. Pavliscsak inquired about the safety program for the UMCS and generator plant. P. Batayias stated that he did not yet have all of the data. J. Pavliscsak suggested that P. Batayias may want to touch base with Industrial Hygiene and Post Safety and ask for a courtesy inspection. P. Batayias will pursue this matter. 09/05/01: P. Batayias stated that a program was being developed. J. Pavliscsak stated that NORESCO-ERI employees may possibly check on training classes held on Base concerning hazardous waste and communications. 09/19/01: P. Batayias stated that he was working on the program. J. Pavliscsak asked P. Batayias if it would be ready by 10/01/01. P. Batayias stated that it would probably not be ready until after 10/01/01. 09/26/01: P. Batayias stated that the procedure is not ready and that he will post the appropriate documents for employment within the state of Georgia. 10/05/01: P. Batayias stated that the procedure would be submitted for review during the week of 10/08/01. The Georgia Department of Labor documents were posted on 10/05/01. J. Pavliscsak asked P. Batayias if there were any OSHA requirements that needed to be posted. P. Batayias will check on this issue. 10/17/01: A hard copy of the safety SOP was presented for review. P. Batayias stated that he was unaware of any postings required by OSHA. 10/24/01: The safety SOP was emailed to J. Pavliscsak on 10/18/01. J. Pavliscsak stated that he has not yet reviewed the safety SOP. J. Pavliscsak gave P. Batayias an OSHA poster (3165) for the employee bulletin board. 10/31/01: J. Pavliscsak stated that he has not yet reviewed. 11/07/01: J. Pavliscsak stated that he has not yet reviewed.			

N O R E S C O
ERI Services Division

Item No.	Discussion	Action	Contact	Target Date
	11/14/01: J. Pavliscsak stated that he has not yet reviewed the safety SOP. P. Batayias stated that he will check on HazCom classes and send Michael McTier, the generator mechanic. 12/13/01: J. Pavliscsak stated that he has not yet reviewed the safety SOP. P. Batayias stated that he spoke with the environmental section and would be sending M. McTier to hazardous waste classes. P. Batayias stated that the NORESCO-ERI Safety Officer would be conducting OSHA training for the employees on 12/17/01 and 12/18/01 at Ft. Gordon. 12/19/01: J. Pavliscsak stated that he has not yet reviewed the safety SOP. P. Batayias stated that he spoke with the environmental section and would be sending Michael McTier (the generator mechanic) to hazardous waste classes. P. Batayias stated that NORESCO-ERI's Safety Officer, John Quirk, conducted OSHA training, which included Hazcom, for the employees on 12/17/01 and 12/18/01 at Ft. Gordon. J. Quirk will be sending a job assessment form. 01/09/02: J. Pavliscsak stated that he has not yet reviewed the safety SOP. P. Batayias provided a list to J. Pavliscsak of employees who received OSHA training on 12/17/01 and 12/18/01. J. Pavliscsak asked P. Batayias if J. Quirk has provided a job assessment form. P. Batayias stated that he would check with J. Quirk. 01/16/02: J. Pavliscsak stated that he has not yet reviewed the safety SOP. J. Pavliscsak asked P. Batayias if J. Quirk has provided a job assessment form. P. Batayias will check with J. Quirk. P. Batayias stated that M. McTier, the generator mechanic, is scheduled for the Hazardous Waste class on 03/20/02 and 03/21/02. 01/23/02: P. Batayias will discuss the job assessment form with J. Quirk when he returns to the office on 01/28/02. 01/30/02: P. Batayias stated that he received the job assessment form and conduct the assessments as soon as possible. J. Pavliscsak stated that the annual Hazardous Chemical Inventory needs to be performed and that he will provide the necessary paperwork. 02/06/02: P. Batayias stated that he would			

Item No.	Discussion	Action	Contact	Target Date
	conduct the job assessments as soon as possible and that NORESCO is working on the annual Hazardous Chemical Inventory. 02/13/02: P. Batayias stated that he would conduct the job assessments during the week of 02/18/02. P. Batayias stated that the annual Hazardous Chemical Inventory should be complete by 02/22/02. 02/20/02: No change. 02/27/02: P. Batayias conducted the job assessments on 02/26/02 and provided a hard copy to J. Pavliscsak. P. Batayias reported that NORESCO completed the annual Hazardous Chemical Inventory and submitted it to the Government on 02/26/02. 03/06/02: J. Pavliscsak stated that he will continue review of the safety SOP upon completion of the reconciliation.	NORESCO	J. Pavliscsak	
02/20/01-049	**HOSPITAL AREA (DORSETT'S INSTALLATION)** P. Batayias asked J. Pavliscsak what NORESCO's responsibilities will be with the new Dorsett's installation. J. Pavliscsak stated that it was not clear at this time; however, there will be some responsibility (i.e., card repair, calibration, and monitoring). 02/27/02: No change. 03/06/02: No change.			
02/20/01-050	**DRAFT SOPs** J. Pavliscsak received four copies and has distributed for review. 02/27/02: J. Pavliscsak reported that he is reviewing the SOPs. 03/06/02: No change.	Ft. Gordon	J. Pavliscsak	
03/06/01-051	**BENEFICIAL USE AGREEMENT** P. Batayias reported that D. Leach will send the Beneficial Use Agreement for ECSM-02 and -03a by 03/08/02.	NORESCO	D. Leach	03/08/02
03/06/01-052	**HOSPITAL SWITCHGEAR O&M MANUALS/KEYS** P. Batayias provided J. Pavliscsak with two O&M manuals and four keys for the Hospital switchgear. Two of the keys are for the controls cabinet latch and the other two are for the system controls switch. J. Pavliscsak assumed possession of the above items. Item closed.	Remove		

The next meeting will be held on Wednesday, March 13, 2002, at 1330 hrs in Building 14600.

This memorandum will become part of the project record. Please notify

P. Batayias of any revisions within 5 days of receipt of these notes.

T

Table of Content

1. Noresco, SOP- Table of Content (Draft)
2. Noresco, Safety SOP (Draft)
3. Noresco, Personal Protective Equipment (PPE) Program
4. Noresco, Hazard Assessment Certification Form
5. Noresco, 10 hour OSHA Training Roster
6. Noresco, Lockout/Tagout Procedures
7. Fort Gordon, Existing Lockout/Tagout Procedures

Noresco SOP Table of Contents (Draft)
Awaiting Review from Fort Gordon

Fort Gordon Operations Manual
Table of Contents

I. General
1. Generator & UMCS Scope of Work

II. UMCS Operations
1. General
2. Duty Hours
3. Noresco Holidays
4. Daily Log Instructions
5. Other Log Instructions
   a. Schedule Modification Log
   b. Work Order Log
6. Telephone Procedures
   a. Taking Calls
   b. After Hours Call Forwarding
   c. Remote Monitoring Center
7. Annual Point to Point Calibration and Verification
   a. Safety
   b. Quality Control
   c. General
   d. Analog Inputs
   e. Digital Inputs/Outputs
   f. Analog Outputs
8. Procedures for Additional Work
9. Other UMCS Responsibilities
   a. Elevator Lock Out Procedure

III. Load Management Procedures
1. RTP Based Peak Shaving
   a. Main Base Generators RTP Procedures
   b. Hospital Generators RTP Procedures
   c. Chilled Water Storage RTP Procedures
   d. Load Shed RTP Procedures
2. IS Curtailment Procedures
3. Commercial Power Outage Procedure
4. Natural Gas Curtailments - will be added when published (follow directions from Fort Gordon Energy Manager)

IV. Generator Plant Operations
1. Pre-Operational Procedures
2. Starting Procedures
3. Placing Generators Online (Normal Conditions)
4. Placing Generators Online (Commercial Power Outage)
5. Operational Checks and Services
6. Shutdown Procedures
7. Post Operational Checks
8. Loss of Shore Power

V. **Substation Procedures During Commercial Power Outage**

VI. **Safety**
1. General
2. Electrical Safety
3. Fueling Operations
4. Hot Work
5. Battery Servicing

VII. **Spill Response**
Follow Guidelines set Forth by Fort Gordon "Installation Spill Contingency Plan"

VIII. **Inventory Accountability**

IX. **Force Majeure Events**
1. General

Attachments

Attachment A: Forms
1. UMCS Daily Log
2. UMCS Temporary TOD Modification Log
3. UMCS Work Order Log

Attachment B: Inventories
1. Generator Critical Parts List
2. Generator Site Tool Inventory

Noresco Safety SOP (Draft)
Awaiting Review from Fort Gordon

Section VI
Safety

VI.1 General

A) Safety is a primary concern and is everyone's responsibility. Safety is of paramount importance, with this in mind careless damage to personnel and equipment can be avoided. Each individual must be aware of his/her surroundings in order to perform work in a safe and prudent manner. Use all safeguards to provide for your protection and that of others.

B) All employees will comply with the Safety SOP.

C) Day to day safety awareness contributes to an effective maintenance program. Everyone must be involved. Safety becomes second nature when supervisors and operators enforce common sense safety rules. These rules include the following:

1) Smoking is allowed only in designated smoking areas.
2) Proper stowage of flammables and non-flammables.
3) Clean, well lighted, and ventilated work areas.
4) Properly grounded electrical equipment.
5) Training in the use of fire extinguishing agents.
6) Use protective devices for eyes and ears.
7) Inspect tools and equipment before attempting repairs.
8) Use only approved cleaning solvents.
9) Use protective clothing.
10) Properly use tools, compressed air, and hydraulic equipment.
11) Insure POL products are re-sealed and properly stowed.
12) No contact lenses are worn during welding operations.
13) Always use extreme caution when working with hazardous materials.
14) Never allow horseplay.

VI.2 Electrical Safety

A) Purpose: To establish safety procedures for the operation, testing, and maintenance of electrical components and systems.

B) Scope: This SOP is applicable to all personnel.

C) Definitions

1) Machinery Spaces: Those spaces that are primarily used for machinery of any type or equipment for the control of such machinery; i.e., HVAC and Generators.
2) Inspection: To make an official examination, checking or testing of a component against established standards.

3) Lock-out/Tag-out: The application of a keyed lock, and attachment of tags to all de-energized equipment or circuits in order to insure that those circuits cannot be energized while maintenance or testing is being conducted to that equipment or circuit.
4) Safe Clearance Procedure: An operating procedure by which a person may have a designated system or equipment removed from and held out of service until release by him.

D) Responsibilities

1) The immediate supervisor is responsible for:
   a) The application and enforcement of this SOP.
   b) Insuring that only qualified personnel are permitted to engage in the operation.
   c) Briefing the involved personnel on all precautions and safety aspects of the operation.
2) The maintenance personnel are responsible for:
   a) Adherence to this SOP.
   b) Obtaining assistance/guidance if the operation requires additional manpower, is beyond the individual's technical level, or if there is any question of safety.
   c) Reporting all safety violations/unsafe conditions to his/her immediate supervisor.

E) Procedures

1) Inspections
   a) Electrical inspections should insure that the arrangement, materials, and installation fully comply with drawings and authorized modifications.
   b) Electrical Cable
      (i) Should be examined for size and type as far practical without undue disturbance of fixtures.
      (ii) The adequacy of cable supports shall be examined and it shall be ascertained that no cable is in the proximity of hot objects and that the cables are not damaged; due to sharp bends or rough edges of cable supports.
      (iii) Cable penetrations required to be watertight shall be examined for proper packing of the terminals or stuffing tubes, including future take up of gland nuts.
      (iv) All equipment and circuits shall be inspected for possible development of physical changes or deterioration.
      (v) Unless essential for operational purpose, cable should not be installed in hazardous areas.
   c) Generators: Shall be inspected for general condition and tested both electrically and mechanically for voltage regulation, parallel operation, operation of safety devices, switches, circuit breakers, and similar devices.
   d) Switchgear
      (i) Shall be inspected for working space, insulating floor covering, drip covers, enclosures for backs and ends, and identifying nameplates. Circuit nameplates should be compared with the rating and setting of the over-current devices.
      (ii) All indicating devices inspected for proper operation
         • An approved circuit breaker.

- An ammeter with selector switch that connects the ammeter, to show current for each phase.
- A volt meter with selector switch that connects the volt meter to show:
  - Generator voltage for each phase.
  - Bus voltage of one phase.
- A frequency meter.

e) Rotating Electrical Machinery: Shall be examined to assure that rotating and or uninsulated electrical parts are adequately shielded from accidental contact by personnel.

f) Motors and Motor Starters: Shall be examined to assure proper starting of the motor under service conditions and to assure that properly rated over-current devices are installed. Motors, motor starters, and control switches used with vital machinery should be visually examined for condition and suitable nameplate ratings. When there is evidence of deterioration (i.e., insulation) they shall be opened for closer inspection.

g) Panel Boards: The rating or setting of the over-current devices shall be compared with the values given on the circuit directory. The accuracy of the directory description of leads served by each circuit should be checked. The directories can be checked by opening/closing one breaker at a time; while verifying the voltage at the equipment or circuit being tested (utilizing a multi-meter).

h) Grounding: Metal enclosures for electrical equipment shall be grounded, either by the mounting method or by leads. Portable equipment shall be examined for grounding through the grounding conductor of the supply cable.

i) Storage batteries: Used for diesel engine generator starting should be tested for operation.

j) Emergency Lighting: The adequacy of emergency lights should be checked with all general lighting turned off.

2) Tests

a) Always prove that a circuit is de-energized, locked-out, and tagged out prior to starting, testing or troubleshooting that circuit.

b) Always have the proper reference (technical manual, manufacturer's literature, SOP) available when testing or performing maintenance on equipment.

c) Remove all rings, watches, necklaces, identification tags, and similar items when working around electrical devices or rotating machinery.

VI.3 Fueling Operations

A) Purpose: Due to the potential safety and environmental hazards that exist in the loading and transferring of fuel, this SOP has been established to provide strict guidelines as to the procedures that will be followed when taking on fuel.

B) Responsibilities

1) Generator Mechanic/Operator

a) Will meet with the fuel facility (truck) operator to ensure proper communications are established and all aspects of fueling operations are covered and will coordinate actions upon discovery of a fuel oil spill are established.
b) Ensures all adequate safeguards are taken and the proper equipment is available before commencing transfer operations.
c) Will be responsible for lookout, checking for any spills, equipment malfunctions, fire/spark hazards, and to assist in the quick utilization of any fire fighting equipment.
d) Will abide by all posted warnings and procedures to include maintaining a NO Smoking area.

C) Procedures

1) Ground wires will be placed on the truck prior to receiving the fuel nozzle/hose and the nozzle/hose will be returned to the truck prior to disconnecting the ground wire.
2) Hoses are long enough.
3) Hoses are supported so that couplings have no strain on them.
4) Sound the fuel tanks before and after fueling.
5) All valves in the transfer system are lined up prior to receiving fuel.
6) Transfer hoses are in good shape - no cuts, slashes, or soft spots.
7) Flange couplings are properly bolted.
8) Discharge containment equipment are in place (i.e., drip pans), especially at each connection and the fuel station.
9) If cam lock fittings are used, all connections will be lock wired or secured by the use of electrical wire ties.
10) All fueling operations will stop upon the approach of any lightning/electrical storm.
11) In the event of any fuel oil spill, the transfer operation will cease immediately with all equipment returned to the truck. The appropriate organizations will be notified immediately as stated in the Fort Gordon "Installation Spill Contingency Plan".
12) Communications between the operator fueling and UMCS will be maintained at all times.

VI.4 Hot Work

A) Purpose: To develop and implement a regimented program for the conducting of "Hot Work" which will provide all personnel and equipment with protection from fire and explosions.

B) Scope: Hot work includes welding, flame cutting, the use of open flame equipment or any heating of metal to or above a red heat.

C) General Requirements

1) Only approved personnel will perform hot work.
2) No person shall undertake a job involving hot work unless the Supervisor has inspected the area where the work will take place.
   a) Inspection will include but not limited to the following requirements:
      (i) Area shall be gas-free.

(ii) Insure the area can be worked without danger of poisoning or suffocation.
(iii) Work can be accomplished without danger of fire or explosion.
(iv) Workers properly brief as to potential hazards and the safety measures required to accomplish the work.

3) Person actually conducting the hot work will:
   a) Notify their Supervisor when the work is to begin and when it is completed.
   b) Post fire watches with fire extinguishers as necessary.
   c) Insure the fire watches remain at their station for at least 30 minutes after the job is complete.
   d) Insure all personnel connected with the hot work are wearing and using the proper safety gear.
   e) Immediately stop work when in doubt.

VI.5 Battery Servicing and Charging

A) Purpose: To establish safe operating procedures. Assign responsibilities to cover battery cleaning, servicing, and charging.

B) Applicability: This procedure applies to the charging and servicing of lead-acid storage batteries.

C) Material Limits: The number of batteries and amount of electrolyte will be limited to the number and quantity needed to perform a safe and efficient operation.

D) Safety Requirements: Industrial requirements include the following:

1) The charging rate will at all times be kept low enough to prevent boiling over of the contents from the battery cells and rapid generation of hydrogen gas. The battery manufacturer's recommended charging rate should be used.
2) The immediate charging area will be thoroughly ventilated for dissipation of acid fumes before charging unit is placed in operation. If acid fumes are prevalent despite the ventilation precaution, the operation will be suspended until the air has been cleared. Personnel will not remain in the area.
3) Smoking, the use of an open flame, or spark-producing device is prohibited in the area.
4) Care will be taken to prevent short circuits while batteries are being handled or charged. Tools and loose metal objects will not be placed in such a position that they may fall on the batteries. Wrenches and other tools must be carefully used to prevent short circuits. A short circuit may not only cause serious burns, but may also result in an explosion or accumulated hydrogen.
5) Charging units will be periodically checked during operation.
6) When applicable, surfaces supporting the batteries will be covered with baking soda to neutralize any acid spillage.
7) Rags contaminated by cleaning operations will be placed in properly marked, covered metal containers.
8) Chemical goggles, rubber gloves, and rubber apron will be worn during battery handling and servicing.

E) First Aid and Fire Fighting Equipment

1) Fire Extinguisher
2) Deluge Shower/eye wash station

Norësco Personal Protective Equipment (PPE) Program

Noresco

Personal Protective Equipment Program

1. Introduction
2. Responsibilities
    1. Supervisors
    2. Employees
    3. Office of Health and Safety
3. Program Components
    1. Hazard Assessment and Equipment Selection
    2. Protective Devices
        1. Eye and Face Protection
        2. Head Protection
        3. Foot Protection
        4. Hand Protection
    3. Selection and Use of PPE in Laboratories
    4. Cleaning and Maintenance
    5. Training
    6. Recordkeeping

References

Appendix A General Guidelines for Choosing Personal Protective Equipment

Appendix B Hazard Assessment Certification Form

Personal Protective Equipment Program

1.0 Introduction

The objective of the **Personal Protective Equipment (PPE) Program** is to protect employees from the risk of injury by creating a barrier against workplace hazards. Personal protective equipment is not a substitute for good engineering or administrative controls or good work practices, but should be used in conjunction with these controls to ensure the safety and health of employees. Personal protective equipment will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injury and/or illness.

This program addresses eye, face, head, foot, and hand protection.

- The *Noresco* Personal Protective Equipment Program includes:
- Responsibilities of supervisors, employees, and the Safety Coordinator
- Hazard assessment and PPE selection
- Employee training
- Recordkeeping requirements

2.0 Responsibilities

2.1 Supervisors

- Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This involves:
- Performing and documenting a Hazard Assessment of the workplace utilizing the Hazard Assessment Certification Form (Appendix B).
- Providing appropriate PPE and making it available to employees.
- Ensuring employees are trained on the proper use, care, and cleaning of PPE.
- Maintaining records on PPE assignments and training.
- Supervising staff to ensure that the PPE Program elements are followed and that employees properly use and care for PPE.
- Seeking assistance from the Safety Coordinator to evaluate hazards.

- Notifying the Safety Coordinator when new hazards are introduced or when processes are added or changed.
- Ensuring defective or damaged equipment is immediately replaced

2.2 Employees

- The PPE user is responsible for following the requirements of the PPE Program. This involves:
- Wearing PPE as required.
- Attending required training sessions.
- Caring for, cleaning, and maintaining PPE as required.
- Informing the supervisor of the need to repair or replace PPE.

2.3 Safety Coordinator

The Safety Coordinator is responsible for the development and auditing of the PPE Program. This involves:

- Assisting supervisors to conduct workplace hazard assessments to determine the presence of hazards which necessitate the use of PPE.
- Assisting supervisors in conducting periodic workplace reassessments as identified by the supervisor and/or as determined by the Safety Coordinator.
- Maintaining records on hazard assessments. (Copy of the Hazard Assessment Certification Form will be maintained on file at individual locations).
- Providing training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.
- Providing guidance to the supervisor for the selection and purchase of approved PPE.
- Periodically reevaluating the suitability of previously selected PPE.
- Reviewing, updating, and evaluating the overall effectiveness of the PPE Program.

3.0 Program Components

3.1 Hazard Assessment and Equipment Selection

Noresco requires supervisors and contractors to conduct inspections of all workplaces to determine the need for personal protective equipment (PPE) and to help in selecting the proper PPE for each task performed. For each work site, a written document must be completed which lists the findings of the inspection and the specific protective equipment needed.

The supervisors, will conduct a walk-through survey of each work area to identify sources of hazards, including impact, penetration, compression, chemical, heat, dust, electrical sources, material handling, and light radiation. Each survey will be documented using the Hazard Assessment Certification Form (Appendix B), which identifies the workplace surveyed, the person conducting the survey, findings of potential hazards, and date of the survey.

Once the hazards of a workplace have been identified, the supervisor or contractor will determine the suitability of the PPE presently available and as necessary select new or additional equipment, which ensures a level of protection greater than the minimum required to protect the employees from the hazards. Care will be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards will be provided or recommended for purchase.

3.2 Protective Devices

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and shall be maintained in a sanitary and reliable condition. Only those items of protective clothing and equipment that meet NIOSH or ANSI (American National Standards Institute) standards will be procured or accepted for use. Newly purchased PPE must conform to the updated ANSI standards which have been incorporated into the OSHA PPE regulations, as follows:

a. Eye and Face Protection ANSI Z87.1-1989

b. Head Protection ANSI Z89.1-1986

c. Foot Protection ANSI Z41.1-1991

d. Hand Protection: there are no ANSI standards for gloves, however, selection must be based on the performance characteristics of the glove in relation to the tasks to be performed.

Careful consideration will be given to comfort and fit of PPE in order to ensure that it will be used. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

3.2.1 Eye and Face Protection

Prevention of eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, contractors, or others passing through an identified eye hazard area. To provide protection for these personnel, Supervisors of such areas shall procure a sufficient quantity of goggles and/or plastic eye protectors, which afford the maximum amount of protection possible. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Suitable protectors shall be used when employees are exposed to hazards from flying particles, molten metal, acids or caustic liquids, chemical liquids, gases, vapors or harmful light rays.

- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment.
- Side protectors shall be used when there is a hazard from flying objects.
- Goggles and face shields shall be used when there is a hazard from chemical splash.
- Face shields shall only be worn over primary eye protection (safety glasses or goggles).
- For employees who wear prescription lenses, eye protectors shall either incorporate the prescription in the design or fit properly over the prescription lenses.
- Protectors shall be marked to identify the manufacturer.
- Equipment fitted with appropriate filter lenses shall be used to protect against light radiation. Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

Prescription Safety Eyewear

Noresco regulations require that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses (goggles, faceshields) without disturbing the proper position of the prescription lenses or the protective lenses.

Emergency Eyewash Facilities

Emergency eyewash facilities meeting the requirements of ANSI Z358.1 will be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities will be located where they are easily accessible in an emergency.

3.2.2 Head Protection

Head protection will be furnished to, and used by, all employees and contractors engaged in construction and other miscellaneous work. Head protection is also required to be worn by engineers, inspectors, and visitors at construction sites when hazards from falling or fixed objects, or electrical shock are present. Bump caps/skull guards will be issued and worn for protection against scalp lacerations from contact with sharp objects. However, they will not be worn as substitutes for safety caps/hats because they do not afford protection from high impact forces or penetration by falling objects.

3.2.3 Foot Protection

Safety shoes or boots with impact protection are required to be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual materials handling cars) or other activities in which materials or equipment could potentially roll over an employee's feet. Safety shoes or boots with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

3.2.4 Hand Protection

Suitable gloves shall be worn when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, and harmful temperature extremes are present. Glove selection shall be based on performance characteristics of the gloves, conditions, duration of use, and hazards present. One type of glove will not work in all situations.

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and other characteristics (i.e., thickness and permeation rate and time) are known. The Safety Coordinator can assist in determining the specific type of glove material that should be worn for a particular chemical.

3.4 Cleaning and Maintenance

It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. Personal protective equipment shall not be shared between employees until it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible.

It is also important to ensure that contaminated PPE, which cannot be decontaminated, is disposed of in a manner that protects employees from exposure to hazards.

3.5 Training

Any worker required to wear PPE shall receive training in the proper use and care of PPE. Periodic retraining shall be offered by the supervisor to employees, as needed. The training shall include, but not necessarily be limited to, the following subjects:

- When PPE is necessary to be worn.
- What PPE is necessary
- How to properly don, doff, adjust, and wear PPE,
- The limitations of the PPE.
- The proper care, maintenance, useful life and disposal of the PPE.

After the training, the employees shall demonstrate that they understand the components of the PPE Program and how to use PPE properly, or they shall be retrained.

3.6 Recordkeeping

Written records shall be kept of the names of persons trained, the type of training provided, and the dates when training occurred. The Supervisor shall maintain their employees' training records for at least 3 years. The Safety Coordinator shall maintain a copy of the Training Records and the

Hazard Assessment Certification Form for each work site in file.

REFERENCES

American National Standards Institute, American National Standard ANSI Z41-1991, "Personnel Protection - Protective Footwear".

American National Standards Institute, American National Standard ANSI Z87.1-1989, "Practice for Occupational and Educational Eye and Face Protection".

American National Standards Institute, American National Standard ANSI Z89.1-1986, "Safety Requirements for Industrial Head Protection".

OSHA Standard 29 CFR 1910.132, "General Requirements"

OSHA Standard 29 CFR 1910.133, "Eye and Face Protection"

OSHA Standard 29 CFR 1910.135, "Head Protection"

OSHA Standard 29 CFR 1910.136, "Occupational Foot Protection"

OSHA Standard 29 CFR 1910.138, "Hand Protection"

APPENDIX A

General Guidelines for Choosing Personal Protective Equipment

1. **Description and Use of Eye/Face Protectors**

   a. **Safety Glasses.** Protective eyeglasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, scaling, etc. Safety glasses are also available in prescription form for those persons who need corrective lenses.

   b. **Single Lens Goggles.** Vinyl framed goggles of soft pliable body design provide adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.

   c. **Welders/Chippers Goggles.** These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.

      1. Welder's goggles provide protection from sparking, scaling, or splashing metals and harmful light rays. Lenses are

impact resistant and are available in graduated shades of filtration.

2. Chippers/Grinders goggles provide eye protection from flying particles. The dual protective eye cups house impact resistant clear lenses with individual cover plates.

d. **Face Shields.** These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/biological splash.

e. **Welding Shields.** These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. These shields will be provided to protect workers' eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.

2. **Head Protection**

Head injuries are caused by falling or flying objects, or by bumping the head against a fixed object. Head protectors, in the form of protective hats, must resist penetration an absorb the shock of a blow. The shell of the protective hat is hard enough to resist the blow and the headband and crown straps keep the shell away from the wearer's skull. Protective hats can also protect against electrical shock.

Eye and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT - Chipping, grinding, machining, drilling, chiseling, riveting, sanding, etc.	Flying fragments, objects, large chips, particles, sand, dirt, etc.	Spectacles with side protection, goggles, face shields. For severe exposure, use face shield over primary eye protection.
CHEMICALS - Acid chemicals handling	Splash	Goggles, eyecup and cover types.

	Irritating mists	For severe exposure, use face shield over primary eye protection Special-purpose goggles
DUST - Woodworking, buffing, general dusty conditions	Nuisance dust	Goggles, eyecup and cover types.
LIGHT and/or RADIATION Welding - electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14
Welding - gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4
Cutting, torch brazing, torch soldering	Optical radiation	
Glare	Poor vision	Spectacles or welding face shield. Typical shades: 1.5-3
		Spectacles with shaded or special-purpose lenses, as suitable.

Protective hats are made in the following types and classes:

- Type I - Helmets with a full brim.
- Type 2 - Brimless helmets with a peak extending forward from the crown.
- Class A - General service, limited voltage. Intended for protection against impact hazards. Used in mining, construction, and manufacturing.
- Class B - Utility service, high voltage. Used by electrical workers.
- Class C - Special service, no voltage protection. Designed for lightweight comfort and impact protection. Used in certain construction, manufacturing, refineries, and where there is a possibility of bumping the head against a fixed object.

3. Foot Protection

There are many types and styles of protective footwear and it's important to

realize that a particular job may require additional protection other than listed here. Footwear that meets established safety standards will have an American National Standards Institute (ANSI) label inside each shoe.

a. **Steel-Reinforced Safety Shoes**. These shoes are designed to protect feet from common machinery hazards such as falling or rolling objects, cuts, and punctures. The entire toe box and insole are reinforced with steel, and the instep is protected by steel, aluminum, or plastic materials. Safety shoes are also designed to insulate against temperature extremes and may be equipped with special soles to guard against slip, chemicals, and/or electrical hazards.

b. **Safety Boots**. Safety boots offer more protection when splash or spark hazards (chemicals, molten materials) are present:

- When working with corrosives, caustics, cutting oils, and petroleum products, neoprene or nitrile boots are often required to prevent penetration.
- Foundry or "Gaiter" style boots feature quick-release fasteners or elasticized insets to allow speedy removal should any hazardous substances get into the boot itself.
- When working with electricity, special electrical hazard boots are available and are designed with no conductive materials other than the steel toe (which is properly insulated).

4. Hand Protection

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or any combination thereof.

Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overtly contaminated should be rinsed and then carefully removed after use.

Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The type of glove materials to be used in these situations include leather, welder's gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. To protect hands from injury due to contact with moving parts, it is important to:

- Ensure that guards are always in place and used.
- Always lock-out machines or tools and disconnect the power before making repairs.
- Treat a machine without a guard as inoperative; and
- Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

The following is a guide to the most common types of protective work gloves and the types of hazards they can guard against:

a. **Disposable Gloves.** Disposable gloves, usually made of lightweight plastic, can help guard against mild irritants.

b. **Fabric Gloves.** Made of cotton or fabric blends are generally used to improve grip when handling slippery objects. They also help insulate hands from mild heat or cold.

c. **Leather Gloves.** These gloves are used to guard against injuries from sparks or scraping against rough surfaces. They are also used in combination with an insulated liner when working with electricity.

d. **Metal Mesh Gloves.** These gloves are used to protect hands form accidental cuts and scratches. They are used most commonly by persons working with cutting tools or other sharp instruments.

e. **Aluminized Gloves.** Gloves made of aluminized fabric are designed to insulate hands from intense heat. These gloves are most commonly used by persons working molten materials.

f. **Chemical Resistance Gloves.** These gloves may be made of rubber, neoprene, polyvinyl alcohol or vinyl, etc. The gloves protect hands from corrosives, oils, and solvents. The following table is provided as a guide to the different types of glove materials and the chemicals they can be used against. When selecting chemical resistance gloves, be sure to consult the manufacturers' recommendations, especially if the gloved hand will be immersed in the chemical.

Glove Chart

Type	Advantages	Disadvantages	Use Against
Natural rubber	Low cost, good physical properties, dexterity	Poor vs. oils, greases, organics. Frequently imported; may be poor	Bases, alcohols, dilute water solutions; fair vs. aldehydes, ketones.

		quality	
Natural rubber blends	Low cost, dexterity, better chemical resistance than natural rubber vs. some chemicals	Physical properties frequently inferior to natural rubber	Same as natural rubber
Polyvinyl chloride (PVC)	Low cost, very good physical properties, medium cost, medium chemical resistance	Plasticizers can be stripped; frequently imported may be poor quality	Strong acids and bases, salts, other water solutions, alcohols
Neoprene	Medium cost, medium chemical resistance, medium physical properties	NA	Oxidizing acids, anilines, phenol, glycol ethers
Nitrile	Low cost, excellent physical properties, dexterity	Poor vs. benzene, methylene chloride, trichloroethylene, many ketones	Oils, greases, aliphatic chemicals, xylene, perchloroethylene, trichloroethane; fair vs. toluene
Butyl	Speciality glove, polar organics	Expensive, poor vs. hydrocarbons, chlorinated solvents	Glycol ethers, ketones, esters
Polyvinyl alcohol (PVA)	Specialty glove, resists a very broad range of organics, good physical properties	Very expensive, water sensitive, poor vs. light alcohols	Aliphatics, aromatics, chlorinated solvents, ketones (except acetone), esters, ethers
Fluoro-elastomer (Viton) ™ *	Specialty glove, organic solvents	Extremely expensive, poor physical properties, poor vs. some ketones, esters, amines	Aromatics, chlorinated solvents, also aliphatics and alcohols
Norfoil (Silver Shield)	Excellent chemical resistance	Poor fit, easily punctures, poor grip, stiff	Use for Hazmat work

*Trademark of DuPont Dow Elastomers

Glove Type and Chemical Use

*Limited service	VG= Very Good	G= Good	F=Fair	P=Poor (not recommended)

Chemical	Neoprene	Natural Latex or Rubber	Butyl	Nitrile Latex
*Acetaldehyde	VG	G	VG	G
Acetic acid	VG	VG	VG	VG
*Acetone	G	VG	VG	P
Ammonium hydroxide	VG	VG	VG	VG
*Amyl acetate	F	P	F	P
Aniline	G	F	F	P
*Benzaldehyde	F	F	G	G
Benzene	F	F	F	P
utyl acetate	G	F	F	P
Butyl alcohol	VG	VG	VG	VG
Carbon disulfide	F	F	F	F
*Carbon tetrachloride	F	P	P	G
Castor oil	F	P	F	VG
*Chlorobenzene	F	P	F	P
*Chloroform	G	P	P	P
Chloronaphthalene	F	P	F	F
Chromic Acid (50%)	F	P	F	F
Citric acid (10%)	VG	VG	VG	VG
Cyclohexanol	G	F	G	VG

*Dibutyl phthalate	G	P	G	G
Diesel fuel	G	P	P	VG
Diisobutyl ketone	P	F	G	P
Dimethylformamide	F	F	G	G
Dioctyl phthalate	G	P	F	VG
Dioxane	VG	G	G	G
Epoxy resins, dry	VG	VG	VG	VG
*Ethyl acetate	G	F	G	F
Ethyl alcohol	VG	VG	VG	VG
Ethyl ether	VG	G	VG	G
*Ethylene dichloride	F	P	F	P
Ethylene glycol	VG	VG	VG	VG
rmaldehyde	VG	VG	VG	VG

Chemical	Neoprene	Natural Latex or Rubber	Butyl	Nitrile
Formic acid	VG	VG	VG	VG
Freon 11	G	P	F	G
Freon 12	G	P	F	G
Freon 21	G	P	F	G
Freon 22	G	P	F	G
*Furfural	G	G	G	G
Gasoline, leaded	G	P	F	VG
Gasoline, unleaded	G	P	F	VG
Gl...rine	VG	VG	VG	VG

Hexane	F	P	P	G
Hydrochloric acid	VG	G	G	G
Hydrofluoric acid (48%)	VG	G	G	G
Hydrogen peroxide (30%)	G	G	G	G
Hydroquinone	G	G	G	F
Isooctane	F	P	P	VG
Isopropyl alcohol	VG	VG	VG	VG
Kerosene	VG	F	F	VG
Ketones	G	VG	VG	P
Lacquer thinners	G	F	F	P
Lactic acid (85%)	VG	VG	VG	VG
Lauric acid (36%)	VG	F	VG	VG
ineoleic acid	VG	P	F	G
inseed oil	VG	P	F	VG
Maleic acid	VG	VG	VG	VG
Methyl alcohol	VG	VG	VG	VG
Methylamine	F	F	G	G
Methyl bromide	G	F	G	F
*Methyl chloride	P	P	P	P
*Methyl ethyl ketone	G	G	VG	P
*Methyl isobutyl ketone	F	F	VG	P
Methyl methacrylate	G	G	VG	F
Monoethanolamine	VG	G	VG	VG
Morpholine	VG	VG	VG	G

Chemical	Neoprene	Natural Latex or Rubber	Butyl	Nitrile
Naphthalene	G	F	F	G
Naphthas, aliphatic	VG	F	F	VG
Naphthas, aromatic	G	P	P	G
*Nitric acid	G	F	F	F
Nitromethane (95.5%)	F	P	F	F
Nitropropane (95.5%)	F	P	F	F
Octyl alcohol	VG	VG	VG	VG
Oleic acid	VG	F	G	VG
Oxalic acid	VG	VG	VG	VG
Palmitic acid	VG	VG	VG	VG
Perchloric acid (60%)	VG	F	G	G
Perchloroethylene	F	P	P	G
Petroleum distillates (naphtha)	G	P	P	VG
Phenol	VG	F	G	F
Phosphoric acid	VG	G	VG	VG
Potassium hydroxide	VG	VG	VG	VG
Propyl acetate	G	F	G	F
Propyl alcohol	VG	VG	VG	VG
Propyl alcohol (iso)	VG	VG	VG	VG
Sodium hydroxide	VG	VG	VG	VG
Styrene	P	P	P	F
Stryene (100%)	P	P	P	F

Sulfuric acid	G	G	G	G
Tannic acid (65%)	VG	VG	VG	VG
Tetrahydrofuran	P	F	F	F
*Toluene	F	P	P	F
Toluene diisocyanate	F	G	G	F
*Trichloroethylene	F	F	P	G
Triethanolamine	VG	G	G	VG
Tung oil	VG	P	F	VG
Turpentine	G	F	F	VG
*Xylene	P	P	P	F

*Limited service	VG= Very Good	G= Good	F=Fair	P=Poor (not recommended)

Appendix B

Hazard Assessment Certification Form

Date:	Location:
Assessment Conducted By:	
Specific Tasks Performed at this Location:	

Hazard Assessment and Selection of Personal Protective Equipment

I. Overhead Hazards -

- Hazards to consider include:
- Suspended loads that could fall

- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:

Head Protection

Hard Hat:	Yes	No

If yes, type:

- ☐ **Type A** (impact and penetration resistance, plus low-voltage electrical insulation)
- ☐ **Type B** (impact and penetration resistance, plus high-voltage electrical insulation)
- ☐ **Type C** (impact and penetration resistance)

II. Eye and Face Hazards -

- Hazards to consider include:
- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles

Hazards Identified:

Eye Protection		
Safety glasses or goggles	Yes	No
Face shield	Yes	No

III. Hand Hazards -

- Hazards to consider include:
- Chemicals
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material handling

Hazards Identified:

Hand Protection		
Gloves	Yes	No
☐ Chemical resistant		
☐ Temperature resistant		
☐ Abrasion resistant		
☐ Other (Explain)		

IV. Foot Hazards -

- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

Hazards Identified:

Foot Protection

Safety shoes	Yes	No
Types: ☐ Toe protection ☐ Metatarsal protection ☐ Puncture resistant ☐ Electrical insulation ☐ Other (Explain)		

V. Other Identified Safety and/or Health Hazards:

Hazard	Recommended Protection

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on _____.

_____

(Signature)

RECEIPT AND ACKNOWLEDGMENT OF TRAINING REGARDING PERSONAL PROTECTIVE EQUIPMENT (PPE)

When the job warrants, employees must wear personal protective equipment. Each employee will be responsible for the care and storage of his/her personal equipment.

Training shall be provided regarding the type of protection needed and how to use, inspect, wear, clean and store such equipment.

Supervisors shall be responsible for monitoring work practices and enforcing the wearing of personal protective equipment.

EQUIPMENT CHECKLIST

Name _____

Department _____

Job Classification _____

Driver's License # _____

Type of Equipment Issued	Date Training Provided	Trainer's Initials	Employee's Initials

_____: This certifies that _____ has been provided with
Supervisor (please print) Employee (please (print)

above noted equipment and has completed training in the use of the equipment.

_____
Supervisor's Signature

Employee: I have been given above noted equipment and have been trained in its use. I understand why it is necessary to use such equipment. I agree to use it.

_____
Employee's Signature

ONE EXAMPLE OF EQUIP ISSUE.

RECEIPT AND ACKNOWLEDGMENT OF TRAINING REGARDING PERSONAL PROTECTIVE EQUIPMENT (PPE)

When the job warrants, employees must wear personal protective equipment. Each employee will be responsible for the care and storage of his/her personal equipment.

Training shall be provided regarding the type of protection needed and how to use, inspect, wear, clean and store such equipment.

Supervisors shall be responsible for monitoring work practices and enforcing the wearing of personal protective equipment.

EQUIPMENT CHECKLIST

Name MICHAEL MCTIER

Department GENERATOR PLANT

Job Classification GENERATOR OPERATOR/MECHANIC

Driver's License #

Type of Equipment Issued	Date Training Provided	Trainer's Initials	Employee's Initials
AURAL PROTECTOR	15 MAR 02	PKB	MM
SAFETY GLASSES		PKB	MM
BUMP CAP		PKB	MM
LEATHER WORK GLOVES		PKB	MM
SAFETY GOGGLES	15 MAR 02	PKB	MM

PETER K. BATAYIAS: This certifies that Michael McTier has been provided with
Supervisor (please print) Employee (please print)

above noted equipment and has completed training in the use of the equipment.

Peter K. Batayias II
Supervisor's Signature

Employee: I have been given above noted equipment and have been trained in its use. I understand why it is necessary to use such equipment. I agree to use it.

Michael McTier
Employee's Signature

Noresco Hazard Assessment Certification Form

Sulfuric acid	G	G	G	G
Tannic acid (65%)	VG	VG	VG	VG
Tetrahydrofuran	P	F	F	F
*Toluene	F	P	P	F
Toluene diisocyanate	F	G	G	F
*Trichloroethylene	F	F	P	G
Triethanolamine	VG	G	G	VG
Tung oil	VG	P	F	VG
Turpentine	G	F	F	VG
*Xylene	P	P	P	F

*Limited service	VG= Very Good	G= Good	F=Fair	P=Poor (not recommended)

Appendix B

Hazard Assessment Certification Form

Date: 26 FEB 02	Location: GENERATOR PLANT
Assessment Conducted By: Peter K. Batagias	
Specific Tasks Performed at this Location: GENERATOR OPERATIONS & MAINTENANCE	

Hazard Assessment and Selection of Personal Protective Equipment

I. Overhead Hazards -

- Hazards to consider include:
- Suspended loads that could fall

- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:

Head Protection

Hard Hat:	Yes	(No)

If yes, type:

- ☐ **Type A** (impact and penetration resistance, plus low-voltage electrical insulation)
- ☐ **Type B** (impact and penetration resistance, plus high-voltage electrical insulation)
- ☐ **Type C** (impact and penetration resistance)

II. Eye and Face Hazards -

- Hazards to consider include:
- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles

Hazards Identified: SULFURIC ACID, OILS, ANTI-FREEZE. DIESEL FUEL (CHEMICAL SPLASHES)

Eye Protection

Safety glasses or goggles	Yes	No
Face shield	Yes	No

III. Hand Hazards -

- Hazards to consider include:
- Chemicals
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material handling

Hazards Identified: SULFURIC ACID, OILS, ANTI-FREEZE
1. DIESEL FUEL (CHEMICALS)
2. MATERIAL HANDLING
3. SHARP TOOLS, MACHINERY PARTS
4. SHARP EDGES

Hand Protection

Gloves	Yes	No
☒ Chemical resistant	✓	
☐ Temperature resistant		
☒ Abrasion resistant	✓	
☒ Other (Explain) 20 KV GLOVES	✓	

IV. Foot Hazards -

- Hazards to consider include:

- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

Hazards Identified: 1. HEAVY MATERIALS
2. SHARP EDGES

Foot Protection

Safety shoes	Yes	No
Types:		
☒ Toe protection		
☐ Metatarsal protection		
☐ Puncture resistant		
☐ Electrical insulation		
☐ Other (Explain)		

V. Other Identified Safety and/or Health Hazards:

Hazard	Recommended Protection
NOISE LOW & MEDIUM VOLTAGE	AURAL PROTECTORS EAR PLUGS

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on 26 FEB 02.

Todd Bates-E
(Signature)

Sulfuric acid	G	G	G	G
Tannic acid (65%)	VG	VG	VG	VG
Tetrahydrofuran	P	F	F	F
*Toluene	F	P	P	F
Toluene diisocyanate	F	G	G	F
*Trichloroethylene	F	F	P	G
Triethanolamine	VG	G	G	VG
Tung oil	VG	P	F	VG
Turpentine	G	F	F	VG
*Xylene	P	P	P	F

*Limited service	VG= Very Good	G= Good	F=Fair	P=Poor (not recommended)

Appendix B

Hazard Assessment Certification Form

Date: 26 FEB 02	Location: Bldg. 29801
Assessment Conducted By: Peter K. Batayias	
Specific Tasks Performed at this Location: TROUBLESHOOTING & MAINT (CONTROLS)	

Hazard Assessment and Selection of Personal Protective Equipment

I. Overhead Hazards -

- Hazards to consider include:
- Suspended loads that could fall

- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:
A FEW OBJECTS AT HEAD LEVEL

Head Protection

Hard Hat:	Yes	No

If yes, type:

- ☐ **Type A** (impact and penetration resistance, plus low-voltage electrical insulation)
- ☐ **Type B** (impact and penetration resistance, plus high-voltage electrical insulation)
- ☒ **Type C** (impact and penetration resistance)

II. Eye and Face Hazards -

- Hazards to consider include:
- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles

Hazards Identified:
DUST PARTICLES

Eye Protection

Safety glasses or goggles	Yes	No
Face shield	Yes	No

III. Hand Hazards -

- Hazards to consider include:
- Chemicals
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material handling

Hazards Identified:
1. ROTATING MACHINERY
2. EXPOSED ELECTRICAL WIRES
3. SHARP EDGES
4. MATERIAL HANDLING

Hand Protection

Gloves	Yes	No
☐ Chemical resistant		
☐ Temperature resistant		
☒ Abrasion resistant	✓	
☐ Other (Explain)		

IV. Foot Hazards -

- Hazards to consider include:

- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

Hazards Identified:
1. WET CONDITIONS
2. UNUSUALLY SLIPPERY CONDITIONS
3. MATERIAL HANDLING
4. SHARP EDGES

Foot Protection

Safety shoes	Yes	No
Types:		
☒ Toe protection	✓	
☐ Metatarsal protection		
☐ Puncture resistant		
☐ Electrical insulation		
☐ Other (Explain)		

V. Other Identified Safety and/or Health Hazards:

	Hazard	Recommended Protection
1.	POOR LIGHTING	REPLACE LAMPS

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on 26 FEB 02.

Peter A Bailey - II
(Signature)

Sulfuric acid	G	G	G	G
Tannic acid (65%)	VG	VG	VG	VG
Tetrahydrofuran	P	F	F	F
*Toluene	F	P	P	F
Toluene diisocyanate	F	G	G	F
*Trichloroethylene	F	F	P	G
Triethanolamine	VG	G	G	VG
Tung oil	VG	P	F	VG
Turpentine	G	F	F	VG
*Xylene	P	P	P	F

***Limited service**	**VG= Very Good**	**G= Good**	**F=Fair**	**P=Poor (not recommended)**

Appendix B

Hazard Assessment Certification Form

Date: 26 FEB 02	Location: Bldg 21707
Assessment Conducted By: Peter Batayias	
Specific Tasks Performed at this Location: TROUBLESHOOTING & MAINT (CONTROLS)	

Hazard Assessment and Selection of Personal Protective Equipment

I. Overhead Hazards -

- Hazards to consider include:
- Suspended loads that could fall

- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:

Head Protection

Hard Hat:	Yes	No
If yes, type:		

- ☐ **Type A** (impact and penetration resistance, plus low-voltage electrical insulation)
- ☐ **Type B** (impact and penetration resistance, plus high-voltage electrical insulation)
- ☐ **Type C** (impact and penetration resistance)

II. Eye and Face Hazards -

- Hazards to consider include:
- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles

Hazards Identified: Dust (minor)

Eye Protection

Safety glasses or goggles	Yes	No
Face shield	Yes	No

III. Hand Hazards -

- Hazards to consider include:
- Chemicals
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material handling

Hazards Identified: MATERIAL HANDLING & ROTATING MACHINERY

Hand Protection

Gloves	Yes	No
☐ Chemical resistant		
☐ Temperature resistant		
☒ Abrasion resistant	✓	
☐ Other (Explain)		

IV. Foot Hazards -

- Hazards to consider include:

- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

Hazards Identified: MATERIAL HANDLING SHARP EDGES ~~HEIGHT~~ UNUSUALLY SLIPPERY CONDITIONS WET CONDITIONS

Foot Protection

Safety shoes	Yes	No
Types:		
☒ Toe protection	✓	
☐ Metatarsal protection		
☐ Puncture resistant		
☐ Electrical insulation		
☒ Other (Explain) NON-SLIP SOLES	✓	

V. Other Identified Safety and/or Health Hazards:

	Hazard	Recommended Protection
1.	BASEMENT PUMPS	NO GUARD ON COUPLINGS
2.	TRASH/LEAVES ON STEPS & LANDING	REMOVE

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on 26 FEB 02.

(Signature)

Noresco (10 Hour OSHA Training) Roster

Noresco Lockout/Tagout Procedures

Noresco- Fort Gordon, Georgia

LOCKOUT/TAGOUT PROCEDURE

Purpose

This program defines responsibilities and establishes procedures for the lockout/tagout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. These procedures must be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could occur.

Scope

This program will cover the following requirements:

- Regulatory Requirements;
- The Role of Employees;
- Outside Personnel and Contractors;
- Employee Training and Retraining;
- Protective Materials and Hardware;
- Written Procedures for Lockout/Tagout;
- General Procedure for Lockout/Tagout;
- Testing of positioning of Machines or Equipment;
- Restoring Equipment to Service;
- Alternate Procedure for Lockout/Tagout Device Removal;
- Procedure for Group Lockout/Tagout;
- Procedure for Shift or Personnel Changes;
- Annual Program Review;
- Definitions; and
- A Model Lockout/Tagout Form.

Introduction

Lockout/tagout programs are designed to prevent accidental startup of machines or equipment, and to prevent the release of stored energy during servicing or maintenance. Through the use of specific procedures that involve applying locks and/or tags, equipment is isolated from energy sources and injuries to workers are prevented. While lockout is the preferred method of isolating machines or equipment from energy sources, tagout is permitted when the energy isolating devices are not lockable. Tagout may not be used when the energy isolating devices are lockable. For complex systems, OSHA requires specific written procedures.

Regulatory Requirements

An employer's lockout/tagout program must be developed to meet the Occupational Safety and Health Administration's (OSHA) requirements found in 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), and 29 CFR 1910.333, Selection and Use of Work Practices (Electrical Safety-Related Work Practices). For complex systems, OSHA requires the employer to develop specific written procedures.

The Role of Employees

Employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout/tagout. An **AFFECTED EMPLOYEE** is anyone whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

An **AUTHORIZED EMPLOYEE** is anyone who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance.

Only authorized employees may lockout or tagout equipment. An authorized employee must notify affected employees (whose work activities are affected by the lockout/tagout procedure) before the procedure is used and when the machine or equipment is returned to service.

Outside Personnel or Contractors

Outside personnel or contractors involved in service or maintenance operations in behalf of Noresco are covered by this program. Outside personnel or contractors are required to follow this procedure unless they submit their company's lockout/tagout procedures to Noresco's Site Manager, located at Ft. Gordon. The Site Manager will then submit a copy of the outside personnel or contractor's lockout/tagout program to the Safety Coordinator, at Noresco for review. Noresco's Site Manager overseeing outside personnel or contractors will notify those personnel of this procedure and the requirements to comply with it. If the outside personnel or contractor uses their company lockout/tagout program, all Noresco affected employees must be notified on the provisions of the outside contractor's lockout/tagout procedures and must comply with its restrictions and prohibitions.

Employee Training and Retraining

All authorized and affected employees must receive initial training, as required. Retraining must be given for employees whenever there is a change in job assignment, a change in machines, equipment, or process that presents a new hazard, or a change in this lockout/tagout program. Retraining must also be given whenever the annual inspection identifies a deficiency in the procedures.

Protective Materials and Hardware

Noresco must provide employees with the necessary protective materials and hardware to perform lockout/tagout. This may include locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware. All devices used for lockout/tagout must be properly identified and must not be used for any other purposes. Lockout/tagout devices must also meet the following requirements:

(1) Durable – Lockout/tagout devices must be capable of withstanding the environment to which they are exposed for the entire period of time that they are used. Tagout devices must be constructed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible. Tags must not deteriorate when used in corrosive environments, such as areas where acid and alkali chemicals are used or stored.

(2) Standardized – Lockout/tagout devices must be standardized, using at least one of the following criteria: Color; shape; or size; and, in the case of tagout devices, print and format.

(3) Substantial - Lockout devices must be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools. Tagout devices must be substantial enough to prevent inadvertent or accidental removal. Tagout devices must be attached with nylon cable ties that are non-reusable, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds.

(4) Identifiable - Lockout/tagout devices must identify the employee applying them.

(5) Wording - Tagout devices must warn against hazardous conditions if the machine or equipment is energized and include a wording such as the following: "Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate."

Written Procedures for Lockout/Tagout

A model written procedure (page 11) is attached to the end of this program. However, specific written procedures for a particular machine or piece of equipment are not required if **ALL** of the following elements exist:

(1) The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees,

(2) The machine or equipment has a single energy source which can be readily identified and isolated,

(3) The isolation and locking out of that energy source must completely deenergize and deactivate the machine or equipment,

(4) The machine or equipment is isolated from that energy source and locked out during servicing or maintenance,

(5) A single lockout device must achieve a locked-out condition,

(6) The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance,

(7) The servicing or maintenance does not create hazards for other employees, and

(8) The department, in utilizing this exception, has had no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

General Procedure for Lockout/Tagout

Lockout/tagout must be performed in accordance with this procedure whenever specific written procedures are not required. See Above Section (Written Procedures for Lockout/Tagout) for information on when specific written procedures are required.

(1) Notify appropriate affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

(2) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

(3) De-activate the energy isolating device(s) (switches, valves, circuit breakers, etc.) so that the machine or equipment is isolated from the energy source(s).

(4) Lock or tag out the energy isolating device(s) with assigned individual lockout/tagout device(s).

Note: If a tag is used without a lockout device to isolate an electrical circuit, then it must be supplemented by one additional safety measure such as the removal of an isolating circuit element, blocking of a controlling switch, or opening an extra disconnecting device.

(5) Dissipate or restrain stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) by methods such as grounding, repositioning, blocking, bleeding down, etc.

(6) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Note: A qualified person (see Definitions) must verify that all electrical circuit parts to which employees may be exposed during service or maintenance are deenergized through the use of test equipment. This test must also determine if any energized condition exist due to inadvertently induced voltage or unrelated voltage feedback even in circuits that have been deenergized and presumed safe. If the circuit to be tested is over 600 volts, the test equipment must be checked for proper operation before and immediately after the test.

(7) The machine or equipment is now locked or tagged out.

Notification

(1) Monday - Friday Day Shift (Normal Maintenance Conditions)
Before any equipment is locked out or tagged out, the employee must notify their immediate supervisor. There must be an agreement as to the specific machine or equipment to be removed from service. The Team Leader or Site Manager will authorize the installation of the lockout/tagout device.

(2) Monday - Friday Day Shift (Emergency Maintenance Conditions)
The employee will lockout/tagout the machine or equipment from service. The employee will then notify their immediate supervisor as to the application of the lockout/tagout device. The Team Leader or Site Manager will authorize the installation of the lockout/tagout device.

(3) All Off-Shifts and Weekends
The employee will lockout/tagout the machine or equipment from service. The employee will then document the application of the lockout/tagout device on the lockout log sheet and UMCS Daily Log Sheet. The employee will also notify the next employee coming on duty to relieve him/her about the application of the lockout/tagout device. Procedures for Shift or Personnel Changes will then be followed (page 7).

Documentation

After each proper application of the lockout/tagout device, the employee will document the application of the device on the Lockout/Tagout Log sheet. After each proper removal of the lockout/tagout device, the employee will document the removal of each device on the Lockout/Tagout Log sheet. For group lockout/tagout, each device will be identifiable as to which employee owns the device and all employees will be listed on the Lockout/Tagout Log sheet. The Team Leader will be responsible for updating and maintaining the Lockout/Tagout Log sheet for every application and removal of a lockout/tagout device.

Testing or Positioning of Machines or Equipment

The following procedure must be used where lockout/tagout devices must be temporarily removed from the energy isolation devices so that the equipment or machine may be energized for testing or positioning.

(1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout/tagout devices and reenergize the machine or equipment for testing or positioning.

(5) When testing or positioning is complete, deenergize machine or equipment and reapply control measures

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps must be taken by the authorized employee who applied the lockout/tagout device. If that employee is not available and the lockout/tagout device must be removed, follow the procedure outline in Alternate Procedure for Lockout/Tagout Device Removal.

(1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout/tagout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Alternate Procedure for Lockout/Tagout Device Removal

Only the authorized employee who applied the devices must remove lockout/tagout devices. However, when that employee is not available and the device must be removed, the following procedure must be used.

(1) The Team Leader or Site Manager must verify that the employee has left the area.

(2) The lockout/tagout device must be removed by the Team Leader or Site Manager through the use of bolt cutters or some other measure.

(3) All reasonable efforts must be made to contact the employee and inform him/her that the lockout/tagout device has been removed.

(4) The Team Leader or Site Manager must ensure that the employee has been informed that his/her lockout/tagout device has been removed before he/she resumes work.

Procedure for Group Lockout/Tagout

When servicing and/or maintenance is performed by more than one person, the following procedure must be used. This procedure has been designed to provide an equivalent level of protection as that provided by individual lockout/tagout devices.

(1) One authorized employee must be designated as responsible for a set number of employees working under the protection of a group lockout/tagout device.

(2) Each employee in the group must review the lockout/tagout procedure to be used.

(3) If more than one crew, etc., is involved, one authorized employee must coordinate the lockout/tagout to ensure that all control methods are applied and that there is continuity of protection for the group.

(4) Each authorized employee must affix a personal lockout/tagout device to the group lockout device, group lockbox, or comparable device before beginning work, and must remove it upon completion of their work.

Procedure for Shift or Personnel Changes

This procedure must be used during shift or personnel changes to ensure the continuity of lockout/tagout protection, for individual and group lockout/tagout.

(1) The on-coming authorized employee must exchange lockout/tagout devices with the off-going authorized employee.

(2) Re-testing must be done to ensure the de-energized state of the equipment.

(3) Employees must discuss the status of maintenance or servicing and any notification of start-up or testing to be performed.

nnual Program Review

Each year an authorized employee, who is not involved in the procedure being inspected, must conduct an inspection of the lockout/tagout procedure. The inspection procedure must include the following elements.

(1) Where lockout is used, a discussion of the authorized employee's responsibility under the lockout/tagout program with the inspector.

(2) Where tagout is used, a discussion of the authorized employee's responsibility under the lockout/tagout program and the limitations of the tagout system with the inspector.

(3) If deficiencies are noted during the inspection, corrective actions and retraining of employees, as necessary, must be done immediately.

Definitions

"Affected employee." An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

"Authorized employee." A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

"Capable of being locked out." An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

"Energized." Connected to an energy source or containing residual or stored energy.

"Energy isolating device." A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

"Energy source." Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

"Hot tap." A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

"Lockout." The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

"Lockout device." A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

"Normal production operations." The utilization of a machine or equipment to perform its intended production function.

"Qualified person." An employee who has training in avoiding the electrical hazards of working on or near exposed energized circuits.

"Servicing and/or maintenance." Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

"Setting up." Any work performed to prepare a machine or equipment to perform its normal production operation.

"Tagout." The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

"Tagout device." A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

This procedure was implemented _____ and will be reviewed at least annually or sooner if deemed necessary.

Specific Lockout Procedure for:

(Identification of machine or equipment)

Authorized employees must perform lockout/tagout in accordance with this procedure for this particular machine or equipment and must initial each step as completed. Affected employees, upon observing a machine or piece of equipment that is locked or tagged out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

Sequence of Lockout

(1) _____ Notify all affected employees that servicing or maintenance is required on this machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Names/Job Titles	How to Notify

(2) _____ The authorized employee shall identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Energy Type & Magnitude	Hazard	Method to Control Energy

(3) _____ If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

Type of Operating Control	Location

(4) _____ De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Energy Isolation Device Type	Location

(5) _____ Lock out the energy isolating device(s) with assigned individual lock(s).

(6) _____ Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Types of Stored Energy	Method to Dissipate or Restrain

(7) _____ Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Note: A qualified person must verify through the use of test equipment that all electrical circuit parts to which employees could be exposed during service or maintenance are deenergized. This test must also determine if any energized condition exist due to inadvertently induced voltage or unrelated voltage feedback even in circuits that have been deenergized and presumed safe. If the circuit to be tested is over 600 volts, the test equipment must be checked for proper operation before and immediately after the test.

(8) _____The machine or equipment is now locked out.

(9) _____The lockout/tagout device was temporarily removed for testing or positioning according to required procedures.

(10)_____The machine or equipment has been restored to service according to required procedures.

(11)Team Leader/Site Manager sign off:_____

Note: Supervisors to keep copies on file.

Noresco- Fort Gordon, Georgia
Lockout/Tagout Log Sheet

No.	Machine/Equipment Locked/Tagged Out	Date Locked Out	Employee(s) Name	Supervisor(s) Name	Date Unlocked/ Untagged	Employee(s) Name	Supervisor(s) Name

Fort Gordon Existing Lockout/Tagout Procedure

Lockout/Tagout Guidelines (Updated 06 July 2000)

a. The purpose of locking and tagging is to ensure the safety of employees working on power-driven equipment by preventing it from being energized during maintenance. This includes electric, steam, pneumatic, hydraulic, or gas-powered equipment and electrical circuits. Whenever power-driven equipment or an electrical circuit is being worked on, it must be locked out and tagged IAW 29 CFR 1910.147.

b. Requirements.

(1) Using the **Seven Steps for Lockout/Tagout** Employees will ensure that they lockout and tag the main source of power before any maintenance, inspection, cleaning, or contact with machinery, equipment or systems that have potential to cause injury or death.

(2) The lockout will be by padlocks, blank flanges, padlock with chains, or similar device that physically prevents reactivation of a main power source.

(3) Individuals required to use locks and tags will be issued a personal lock and key. To eliminate the chance of unauthorized lock removal, duplicate keys will not be provided.

(4) A "Danger" tag that has the installer's full name, shop, telephone number, and date of installation will accompany the lockout device.

(5) In any instance where physical lockout of the main power source is not possible, an attendant must be placed at the control device during work efforts.

(6) Employees going off-shift will render equipment safe and remove their locks and tags. If work is required to continue with the next shift, individuals relieving will apply their locks and tags in place of the departing individual's locks and tags. (7) All incidents requiring Lockout/Tagout procedures shall be documented and logged in the appropriate LOCKOUT SAFETY PROCEDURES log book. Log books are located in each generator control van and shall be used only for that particular generator set. A logbook located in building 14600 UMCS locker room shall be used for all post wide incidents outside the generator site.

'ake Seven Steps for Lockout/Tagout

- *Think, plan and check*. Think through the entire procedure. Identify all parts of any systems that need to be shut down. Determine what switches, equipment and people will be involved. Carefully plan how restarting will take place.

- *Communicate*. Notify all those who need to know that a lockout/tagout procedure is taking place.

- *Identify all appropriate power sources*, whether near or far from the job site. Include electrical circuits, hydraulic and pneumatic systems, spring energy and gravity systems.

- *Neutralize all appropriate power at the source*. Disconnect electricity. Block movable parts. Release or block spring energy. Drain or bleed hydraulic and pneumatic lines. Lower suspended parts to rest positions.

- *Lock out all power sources*. Use a lock designed only for this purpose. Each worker should a personal lock.

- *Tag out all power sources and machines*. Tag machine controls, pressure lines, starter switches and suspended parts. Tags should include your name, department, how to reach you, the date and time of tagging and the reason for the lockout.

- *Do a complete test*. Double check all the steps above. Do a personal check. Push start buttons, test circuits and operate valves to test the system.

When Its Time To Restart

After the job is completed, follow the safety procedures you have set up for restart, removing only your own locks and tags. With all workers safe and equipment ready, it's time to turn on the power.

LOCKOUT SAFETY PROCEDURES

EQUIPMENT LOCATION CHWP - 14600

MODEL _____ MFG. _____

PROCEDURE AUTHORIZED BY JVP - RRF PHONE 6423 DEPT. UMCS

OSHA regulations state that "The procedures shall clearly and specifically outline the scope, purpose, authorization, rules and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to the following:

A). A specific statement of the intended use of the procedure.
B). Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
C). Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
D). Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures."

SOURCES OF ENERGY FOR THIS EQUIPMENT:

☐ Electrical 120 V.A.C.	☐ Gas	☐ Hydraulic
☑ Electrical Disconnect	☐ Steam	☐ Chemical
☐ Electrical _____	☐ Pneumatic	☐ _____
☐ Compressed Air	☐ Thermal	☐ _____

STORED ENERGY (Remember energy can be stored!)

☐ Raised Load	☐ Air Tank	☐ _____
☐ Coiled Springs	☐ Chemical	☐ _____
☐ Charged Capacitors	☐ Hydraulic Pressure	☐ _____
☐ Battery	☐ Pneumatic Pressure	☐ _____

SPECIFIC INSTRUCTIONS FOR LOCKOUT:

No water in system - Tagged only on disconnect until system is filled 01-02-26-01

EE

Johnson, Cassandra T Ms OGC

From: Jones, Kevin D LTC
Sent: Tuesday, June 18, 2002 10:56 AM
To: Johnson, Cassandra T Ms OGC
Subject: RE: Office of Special Counsel Matter--Fort Gordon

Ma'am Got it Txs

V/r LTC J

-----Original Message-----
From: Johnson, Cassandra T Ms OGC [mailto:Cassandra.Johnson@hqda.army.mil]
Sent: Tuesday, June 18, 2002 10:55 AM
To: 'kevin.jones@monroe.army.mil'
Subject: FW: Office of Special Counsel Matter--Fort Gordon

Sir,

Cassandra Tsintolas Johnson
Associate Deputy General Counsel (Human Resources)
104 Army Pentagon
Room 2E725
Washington, D.C. 20310-0104
Phone 703-697-6493
FAX 703-614-1362
Email: cassandra.johnson@hqda.army.mil

Please provide me a status report on this action. I appreciate your assistance.

CTJ.

-----Original Message-----
From: Rosenblatt, James, COL [mailto:james-rosenblatt@us.army.mil]
Sent: Sunday, June 02, 2002 11:09 PM
To: Johnson, Cassandra T Ms OGC
Cc: AA3-Jones, LTC Kevin (DSJA); AA4--Bowman, MAJ Greg (Chief, Admin & Mil Law)
Subject: RE: Office of Special Counsel Matter--Fort Gordon

Ms. Johnson

We will be pleased to work with Gordon to provide you the information you requested. MAJ Bowman will be our POC.

COL Rosenblatt
TRADOC SJA

-----Original Message-----
From: Johnson, Cassandra T Ms OGC [mailto:Cassandra.Johnson@hqda.army.mil]
Sent: Friday, May 31, 2002 11:38 AM
To: 'Rosenblatt, James, COL'
Cc: AA4--Bowman, MAJ Greg (Chief, Admin & Mil Law); Bond, CPT Susan (Ad & Mil Law)
Subject: RE: Office of Special Counsel Matter--Fort Gordon

Sir,

I apologize for not getting back to you sooner but 2 major projects kept my attention focused on them this past month. They are finished now and I can turn to other actions!

Thank you for being so responsive to the OSC action. The report prepared by Fort Gordon is excellent. It is very well-written and thorough. I just have a few issues/questions that I would like to have addressed so I can prepare the final Army report for forwarding to OSC. Generally, I realize that it may be difficult to reconstruct what happened prior to 11/00, as was stated in the ROI, but I thought I would ask some of the questions anyway below.

I spoke with MAJ Bowman on Wednesday and he recommended that I provide my comments via email so they can be addressed by the appropriate office.

1. Please provide me the electrons of the Report of Investigation (ROI). I'd like to extract/cut and paste from it when I prepare the final report.

2. Please have the documents/attachments/tabs listed in a Table of Contents for easy reference.

3. ROI, page 1, paragraph 2, line 8 - isn't it inconsistent to state "all information available regarding operations prior to that date, however, indicated that safety guidelines and laws were met" when OSHA's inspection resulted in the issuance of citations. Maybe this should be reworded.

4. ROI, page 2, paragraph 3A(2) - even though the UMCS operators "were not required by job description to maintain the generators or perform any maintenance on the high voltage equipment," but, were they ever asked to perform such work? Please address this.

5. ROI, Tab B - did the individuals ever receive any other Personal Protective Equipment Training prior to 11/00 (which is post OSHA inspection)? I see that there were other training provided to them pre-OSHA inspection as referenced in the ROI,
paragraph 3B(2).

6. ROI, Tab C - were there any SOPs issued/received by the individuals prior to the 11/00 date?

7. ROI, Tab G - Reference is made in the Fort Gordon reply to DOL to each of the citations. There is a refererence made to
3/6/00 safety and health inspection, evaluations for Risk Assessment of 8/7/00 and Noise Hazards assessment of 10/4/00 but the documents aren't attached. Please provide.

8. ROI, Tab S - has there been an update on the status of the Safety SOP that was last referenced as being under review back on 2/20/02?

Thank you for your assistance.

CTJ

Cassandra Tsintolas Johnson
Associate Deputy General Counsel (Human Resources)
104 Army Pentagon
Room 2E725
Washington, D.C. 20310-0104
Phone 703-697-6493
FAX 703-614-1362
Email: cassandra.johnson@hqda.army.mil

-----Original Message-----
From: Rosenblatt, James, COL [mailto:james-rosenblatt@us.army.mil]
Sent: Wednesday, April 10, 2002 6:31 PM
To: Johnson, Cassandra T Ms OGC
Cc: AA4--Bowman, MAJ Greg (Chief, Admin & Mil Law); Bond, CPT Susan (Ad & Mil Law)
Subject: Office of Special Counsel Matter--Fort Gordon

Ms. Johnson

Attached is the memo you requested that lays out the processing sequence and that provides substantive reasons for the delay.

We are reviewing the case and will have it to you promptly.

COL Rosenblatt
TRADOC SJA

<<Gordon--OSC Investigation--Apr02.doc>>

FF

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON DC 20310-0104

18 June 2002

Ms. Catherine A. McMullen
Chief, Disclosure Unit
U.S. Office of Special Counsel
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

Re: OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Ms. McMullen:

This letter is a status report for the above captioned cases. I am requesting that you grant an extension of time to file the Department of the Army's report required by 5 USC §1213 for the above captioned Office of Special Counsel (OSC) cases that cited allegations of violations of law, rule, or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia.

The request is being made pending the completion of the Special Investigation undertaken by the United States Army Training and Doctrine Command (TRADOC) and its activity at Fort Gordon. Fort Gordon coordinated its Investigative Report with the TRADOC Staff Judge Advocate Office before forwarding it to me for review and further processing within the Department of the Army in preparation of the Department of the Army's final report to the Office of Special Counsel. However, there were several issues that needed to be further addressed in the report. I requested that this additional work be undertaken under the direction of COL James Rosenblatt, Staff Judge Advocate for TRADOC. This effort is currently underway and has not been completed. I anticipate that this additional inquiry and the final Department of the Army report to The Special Counsel should be completed within the next 60 days, should you grant this request.

I appreciate your assistance in granting the extension. Please advise me if this extension will be granted so I can proceed to the next step. I can be reached at 703-697-6493.

Cassandra Tsintolas Johnson

CASSANDRA TSINTOLAS JOHNSON
Associate Deputy General Counsel
(Human Resources)

Printed on Recycled Paper

GG

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SIGNAL CENTER
AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280

REPLY TO
ATTENTION OF:

ATZH-JA

24 June 2002

MEMORANDUM FOR Office of the General Counsel, ATTN: Ms. Cassandra T. Johnson, 104 Army Pentagon, Room 2E725, Washington, DC 20310

SUBJECT: Response to Follow-up Questions, Fort Gordon OSC Investigation

1. Enclosed are the hard copy attachments I referenced in my e-mail response on 21 June. Also enclosed are hard copy responses to your questions.

2. If any further information is needed, please contact me at (706) 791-1854/3148 or by e-mail at lescaulm@gordon.army.mil. Thanks for your help with this matter.

Maurice A. Lescault Jr

MAURICE A. LESCAULT, JR.
LTC, JA
Deputy Staff Judge Advocate

1. Please provide me the electrons of the Report of Investigation (ROI). I'd like to extract/cut and paste from it when I prepare the final report.

The electronic ROI is attached to this e-mail.

2. Please have the documents/attachments/tabs listed in a Table of Contents for easy reference.

A Table of Contents has been prepared and is now included as part of the ROI.

3. ROI, page 1, paragraph 2, line 8 - isn't it inconsistent to state "all information available regarding operations prior to that date, however, indicated that safety guidelines and laws were met" when OSHA's inspection resulted in the issuance of citations. Maybe this should be reworded.

This sentence has been removed from the ROI.

4. ROI, page 2, paragraph 3A(2) - even though the UMCS operators "were not required by job description to maintain the generators or perform any maintenance on the high voltage equipment," but, were they ever asked to perform such work? Please address this.

This statement is accurate, although the word "generators" may be inartfully used. The power generation system consists of the power plant (engine), the transformers (where the high voltage is), and ancillary control devices. Employees were asked to perform minor operator maintenance on and the power plant (engine) and the ancillary equipment, such control devices/switches and fuses. This equipment exposes the operator to what is, at most, medium voltage equipment. The vast majority of the voltage is normal household current (110 or 220 V). Safety precautions were in place, the most important of which was that the power be disconnected from the equipment.

Members of Fort Gordon's Internal Review Office met Mr. Reuben Fullbright at the Generator Plant and asked him to show them the equipment on which he was asked to perform maintenance. The inspectors took pictures of the equipment and below each picture, noted the maintenance Mr. Fullbright says he performed and the voltage concerns (Tab U). Mr. Pete Batayias, Supervisor, Noresco, and Mr. James Pavliscsak, UMCS Contracting Officer Representative in the Directorate of Public Works both concurred with the type of maintenance performed and voltage concerns. Additional comments are warranted in two areas. First, The potential transformers at the generator breaker panel, where fuses were replaced, showed the greatest voltage concern, at 4160 volts. This voltage, the highest encountered by the whistleblowers, is not considered "high" voltage; it is "medium voltage." To replace the fuses, the power was (and is) required to be turned off. Only qualified electrical workers were (and are now) authorized or allowed to work on "high" voltage equipment. In addition, only qualified electrical workers were (and are now) allowed to work with energized equipment. Second, the only operator maintenance done near the transformers that produce the electricity was on the engine (checking fluids, etc.) or on control boxes, like the governor box where the voltage is 120

volts. Thus, the whistleblowers were not required, nor asked, to perform maintenance on high voltage areas or equipment that was energized.

All seven whistleblowers obviously worked *in the area around* some high voltage equipment. However, they met OSHA standards to be in that area by demonstrating proficiency at operator level tasks of the UMCS. In OSHA's Standard Interpretation of Standard Number 1910.269, OSHA's reply to Question 38 (TAB V) outlines the training required for employees in a substation area. It states "Employers may train employees as qualified employees for the purpose of entering and working within restricted areas of generating stations and substations. While the training for these employees must meet para 1910.269(a)(2)(ii), such training need not be as comprehensive as the training provided normally to a qualified electrical worker. These 'qualified' nonelectrical employees must have the following minimum training:

(1) They must know what is safe to touch and what is not safe to touch in the specific areas they will be entering...,
(2) They must know what the maximum voltage of the area is...,
(3) They must know the minimum approach distances for the maximum voltage with the area..., and
(4) They must be trained in the recognition and proper use of protective equipment (note: only fully qualified electrical employees may install insulating equipment on energized parts) that will be used to provide protection for them and in the work practices necessary for performing their specific work assignments within the area...."

In OSHA's response to question 3 (TAB W) regarding an employee that has many years of on-the-job training but no record of specific training, they state: "An acceptable way of certifying training would be for the employer to certify that an employee has completed on-the-job training that complies with the applicable requirements under paragraphs 1910.269(a)(2)(i) and (a)(2)(ii) (TAB X). This certification can only be given when the employee demonstrates proficiency in the work practices involved." All UMCS employees had some documented training as well as substantial on the job training. As a result, they were properly certified to be in the area of the power generating equipment.

5. ROI, Tab B - did the individuals ever receive any other Personal Protective Equipment Training prior to 11/00 (which is post OSHA inspection)? I see that there were other training provided to them pre-OSHA inspection as referenced in the ROI, paragraph 3B(2).

Mr. George Pruitt, Chief, Occupational Health Office, EAMC stated PPE training was performed prior to 11/00 but to date, has been unable to provide documentation. Mr. Pruitt stated that a Safety Tape (VCR) was developed prior to 11/00, and Mr. Pavliscsak was the one of the first supervisors to check it out to conduct training with the UMCS operators (TAB Y).

6. ROI, Tab C - were there any SOPs issued/received by the individuals prior to the 11/00 date?

We cannot find any complete, dated SOP's, nor documentation that shows the individuals received an SOP prior to 11/00. Jim Pavliscsak has an SOP and has stated it was valid and available for employee use prior to 11/00. Mr Pavliscsak stated the standard practice was to have SOP's posted on the wall at UMCS, and employees would make pencil corrections and annotations when procedures changed. Periodically, the SOP would be updated. We found evidence of this practice on a document entitled UMCS SOP for Spills of Hazardous Materials, dtd 28 Aug 95 (TAB Z). We have included the undated SOP provided by Mr. Pavliscsak as an attachment (TAB Z1).

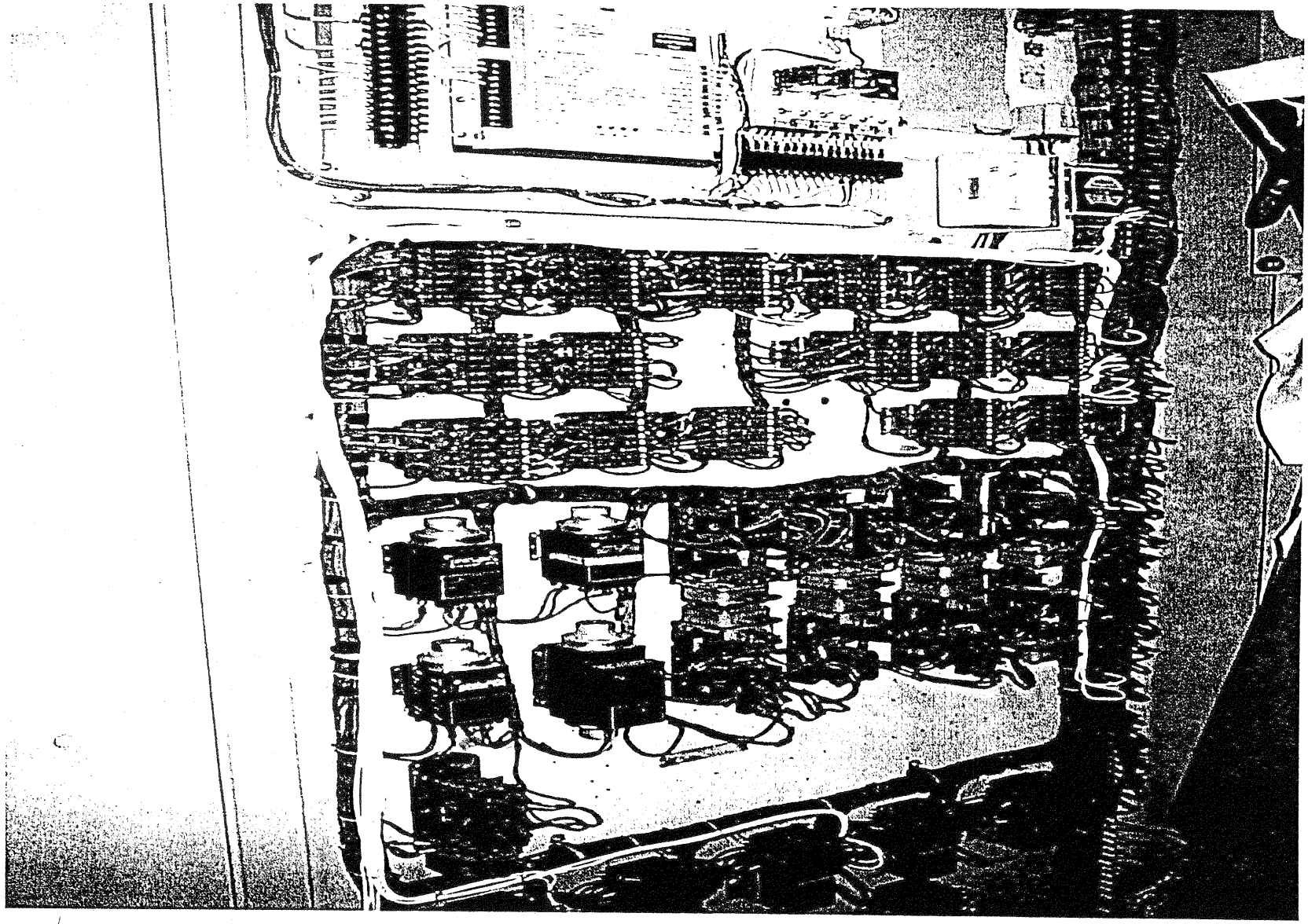
7. ROI, Tab G - Reference is made in the Fort Gordon reply to DOL to each of the citations. There is a reference made to 3/6/00 safety and health inspection, evaluations for Risk Assessment of 8/7/00 and Noise Hazards assessment of 10/4/00 but the documents aren't attached. Please provide.

Copies of the three documents referenced above are provided. (TAB Z2).

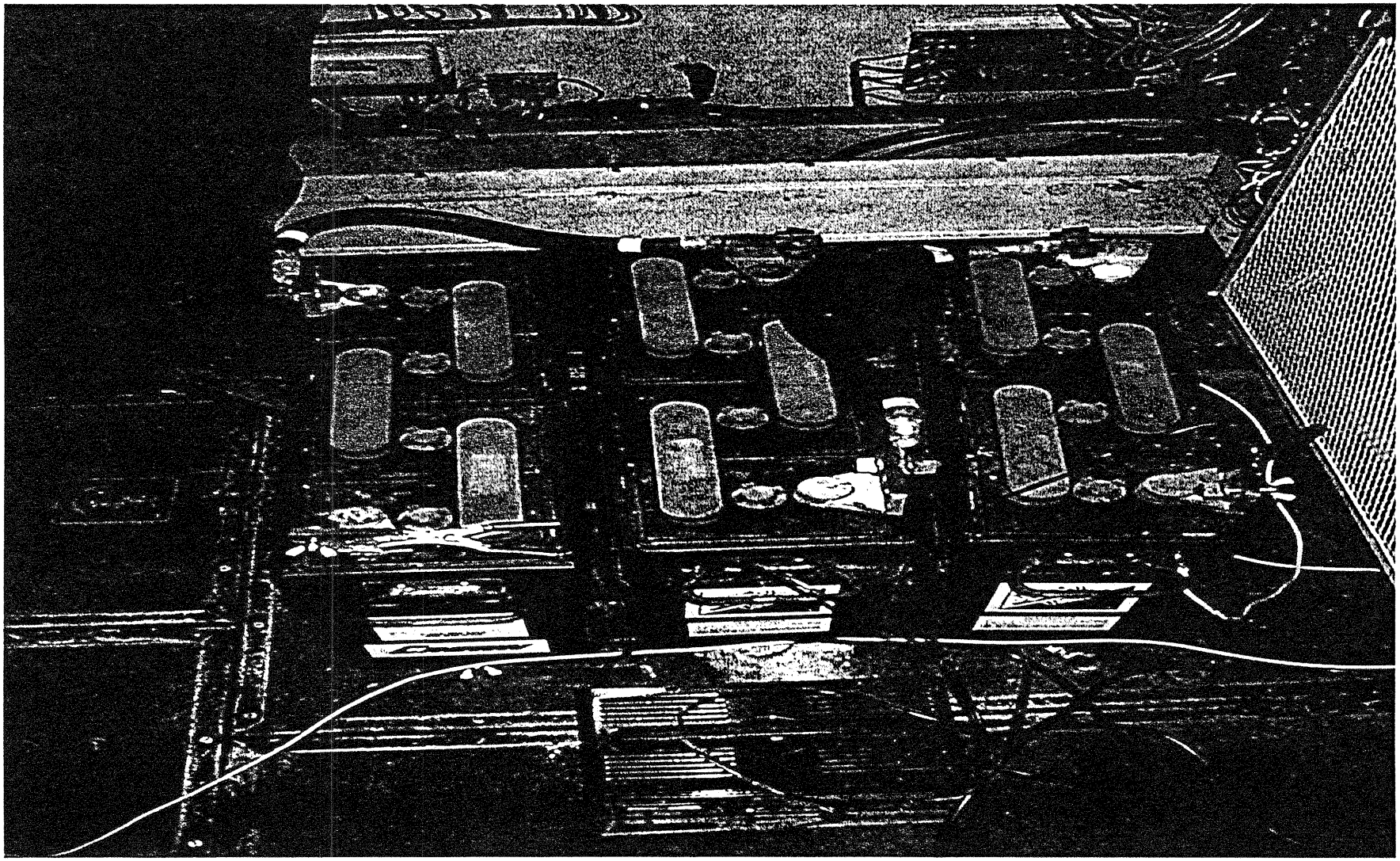
8. ROI, Tab S - has there been an update on the status of the Safety SOP that was last referenced as being under review back on 2/20/02?

The Safety SOP referenced in the weekly meeting documentation is still being updated. The process is somewhat slower than a normal SOP because the document is being negotiated with a contractor who must involve their management in decisions. The process has worked as follows: Noresco wrote the SOP and gave it to Ft Gordon's COR for comment. Fort Gordon leadership had four comments that needed correction. The comments went back to the Contracting Officer and she forwarded them to Noresco management. Her suspense to Noresco is 28 Jun 02. We expect to have their comments and an updated and approved SOP NLT 15 July 2002. Mr. Pavliscsak informs us Noresco's employees already have a copy of the draft SOP and are using it.

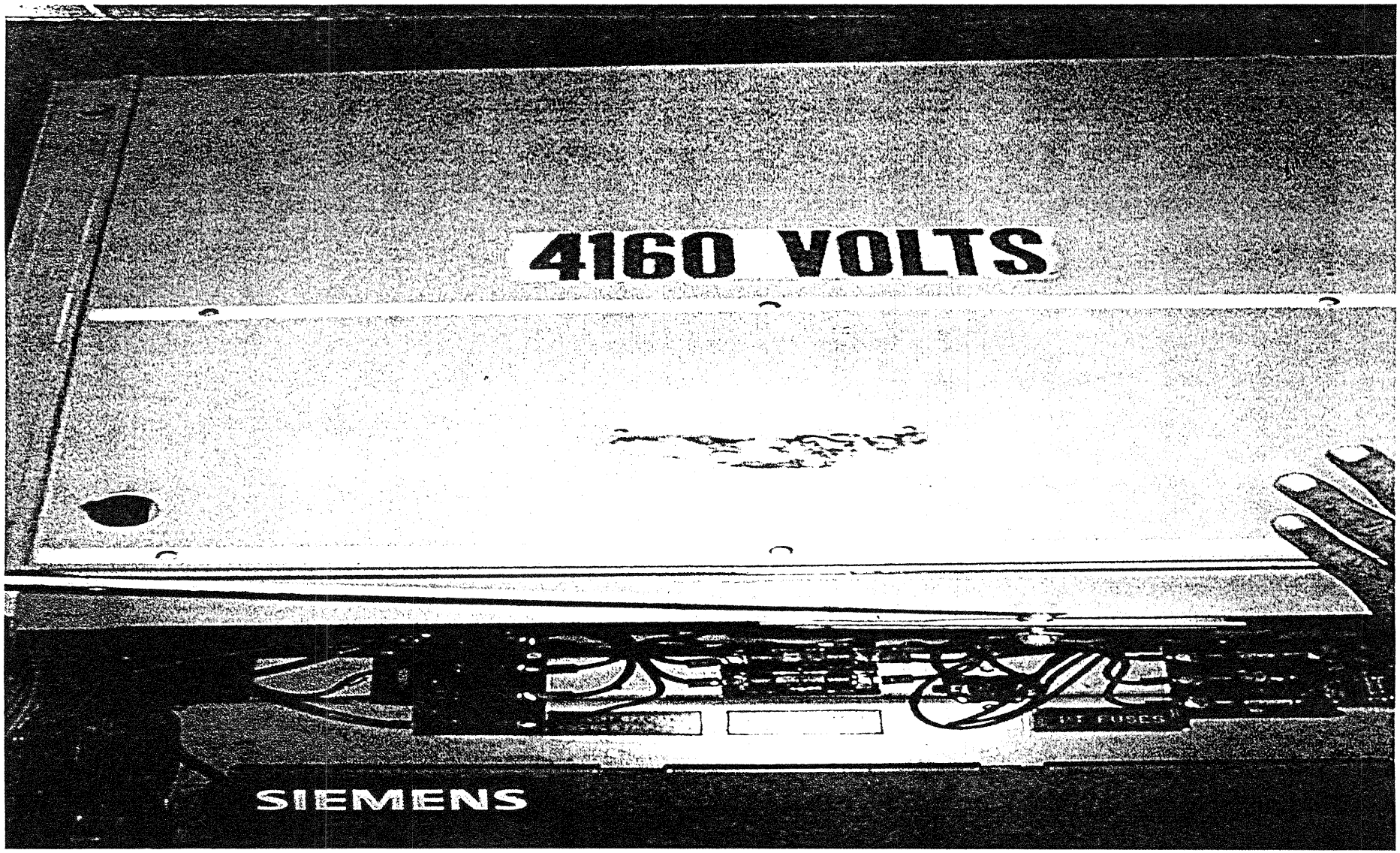
U



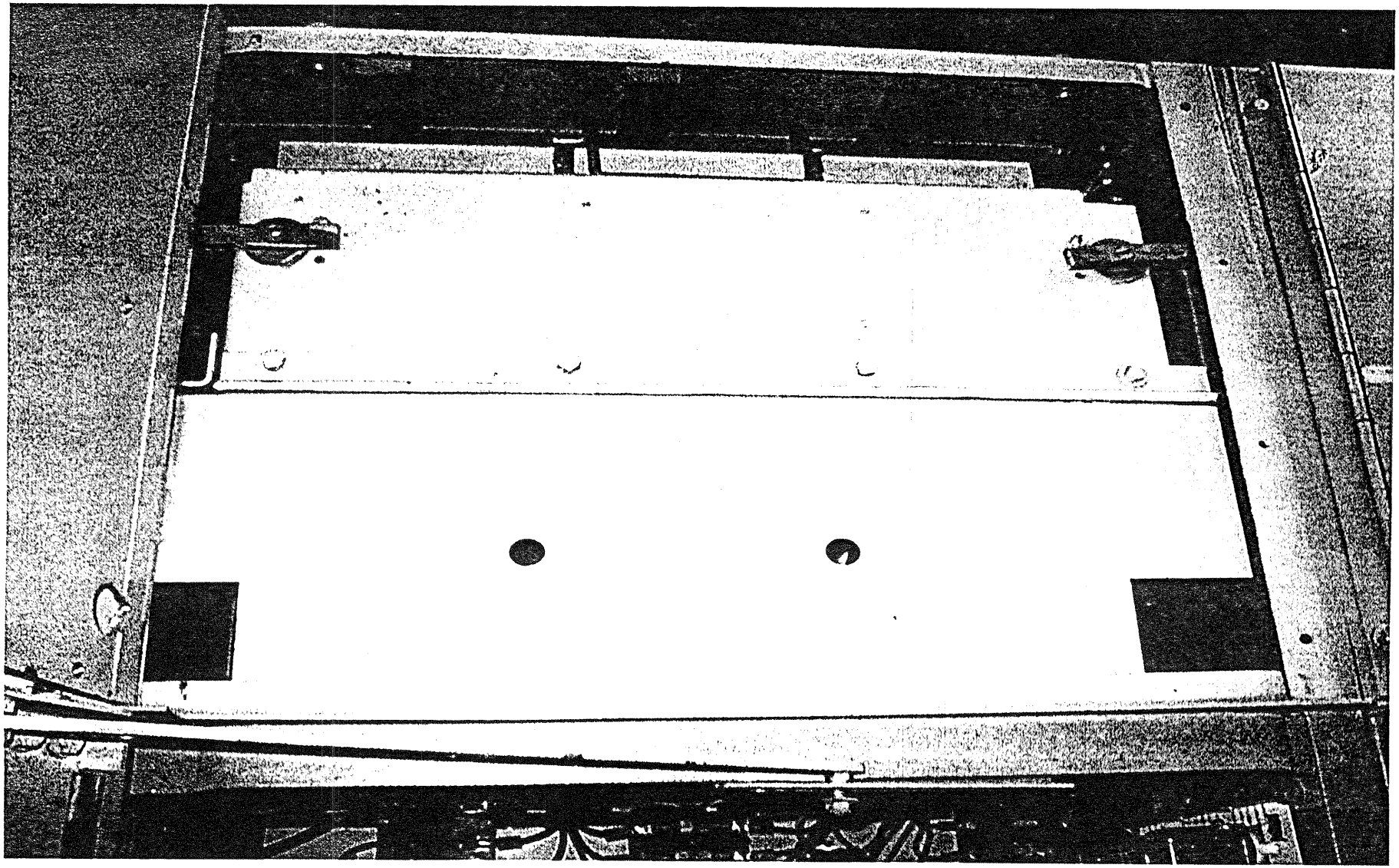
CONTROL VAN RELAYS: TROUBLESHOOTED AND CHECKED.
VOLTAGE – VARIOUS NTE 220 AC



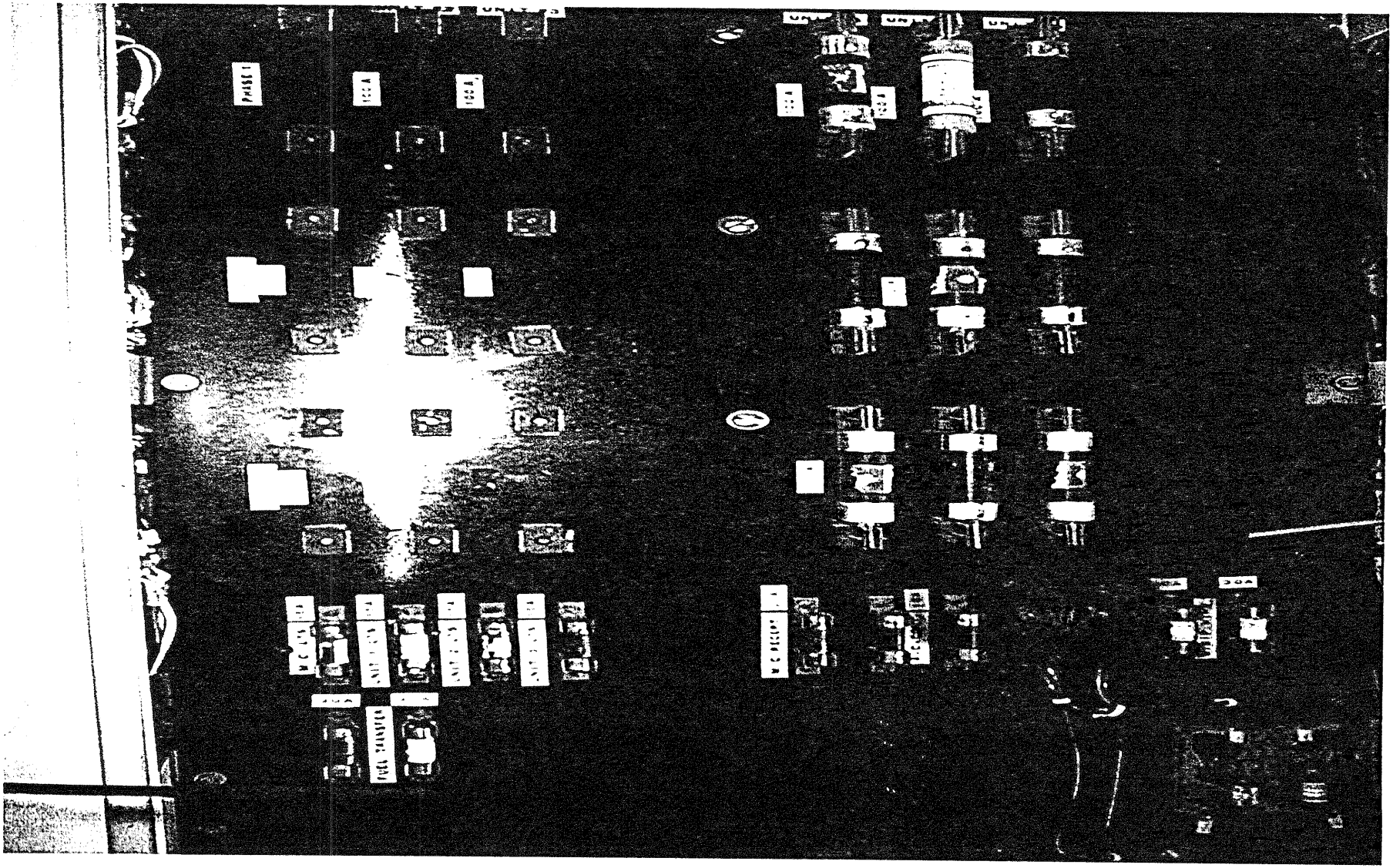
CONTROL VAN BATTERIES: ADDED WATER AND CHECKED ELECTROLYTES. MAJOR CONCERN WOULD BE PPE.



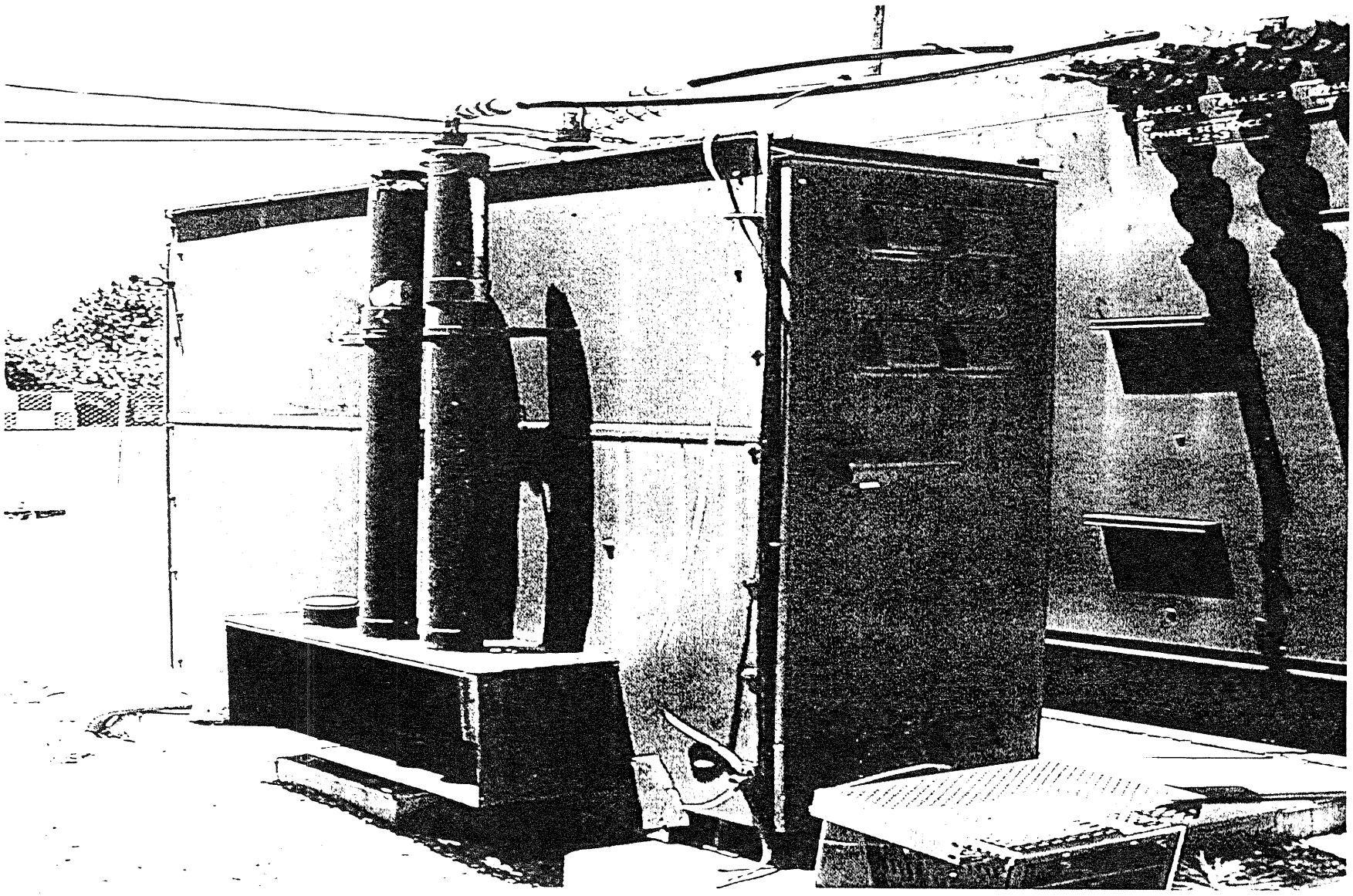
GENERATOR BREAKER PANEL: AREA EXPOSED 125 VOLTS DC. 4160 VOLTS AC IS LOCATION OF POTENTIAL TRANSFORMERS.



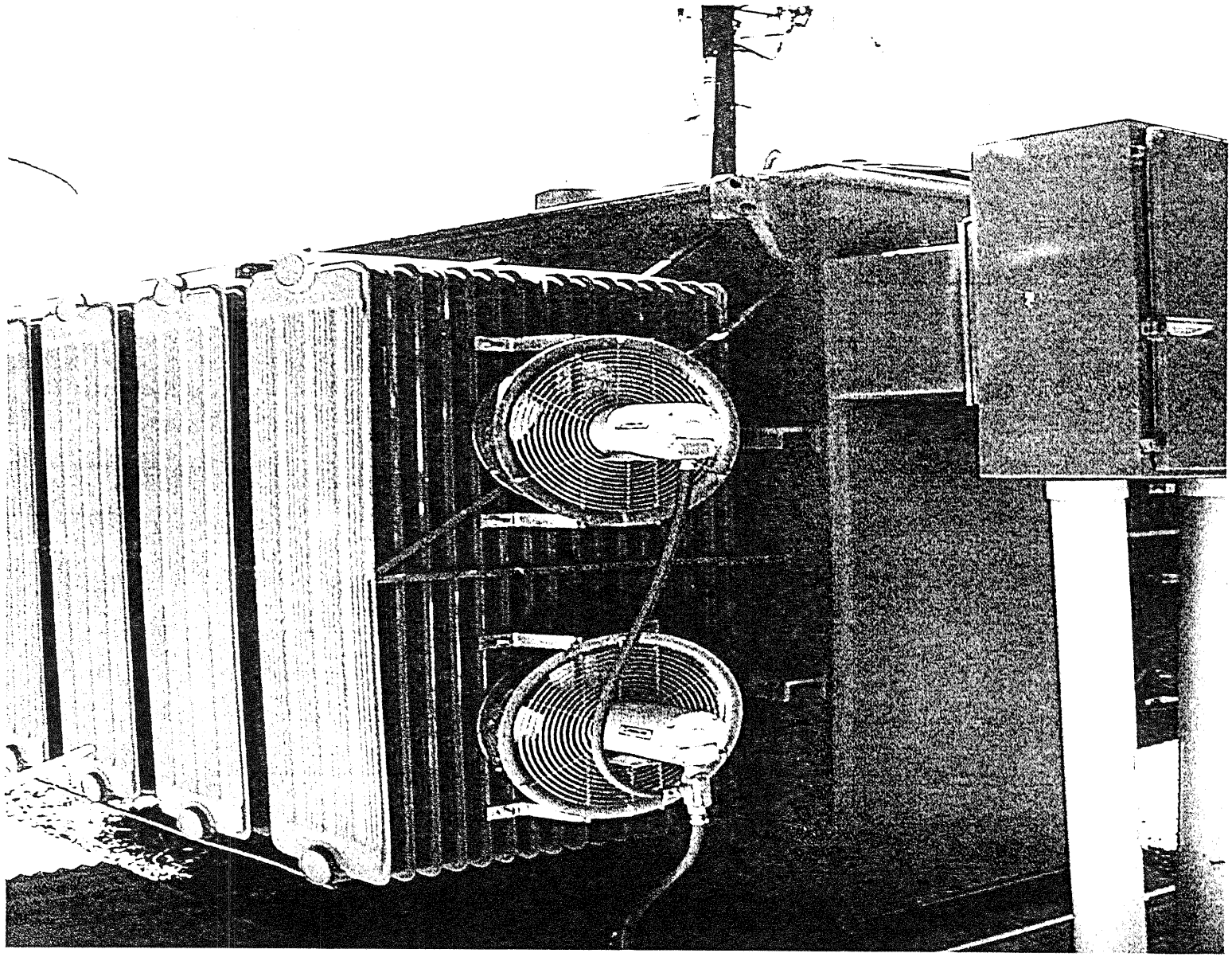
GENERATOR BREAKER PANEL: LOCATION OF THE POTENTIAL TRANSFORMERS WHERE FUSES REPLACED.



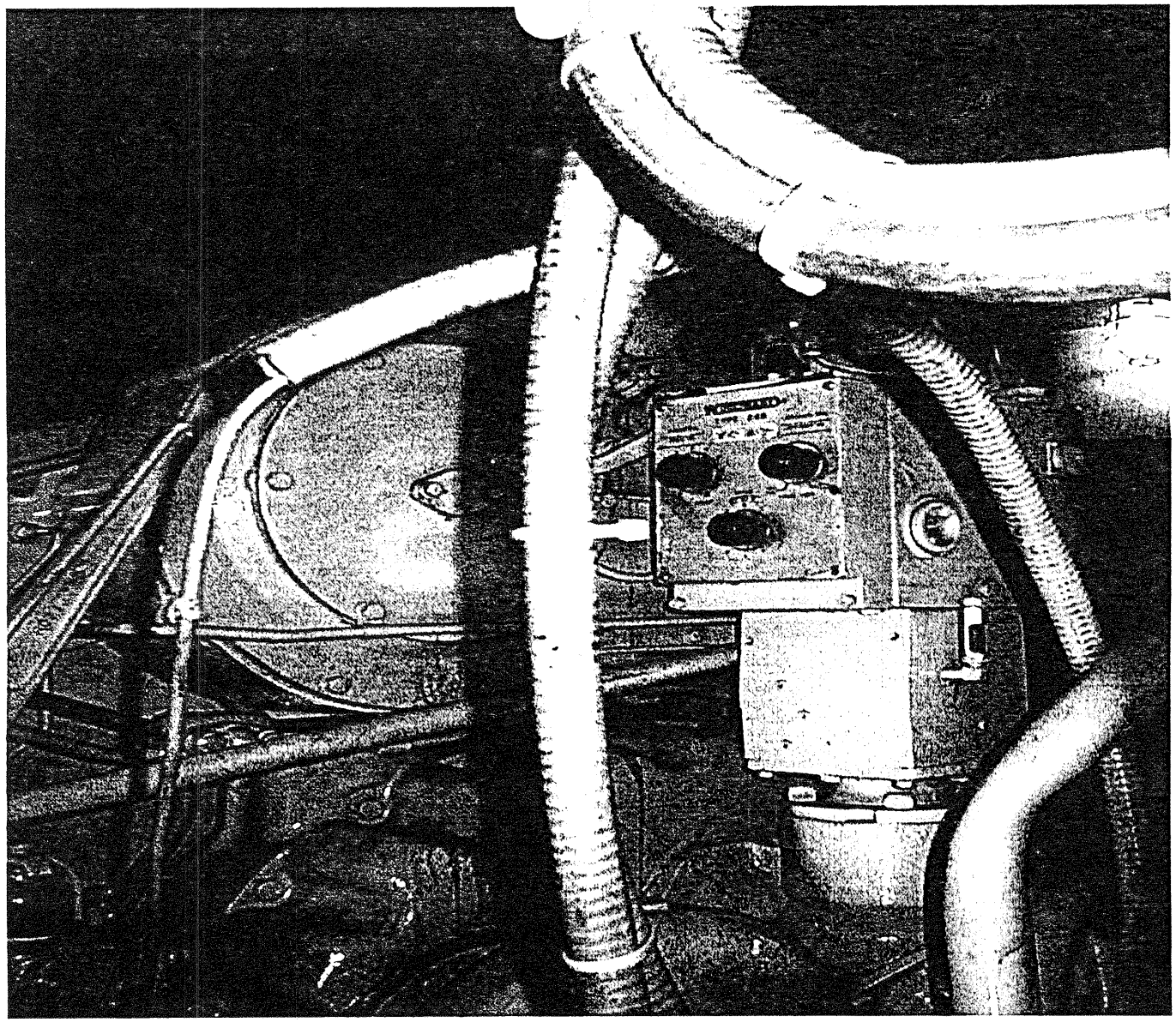
CONTROL VAN FUSE PANEL: REPLACED FUSES. VOLTAGES 240 AC & 120 DC



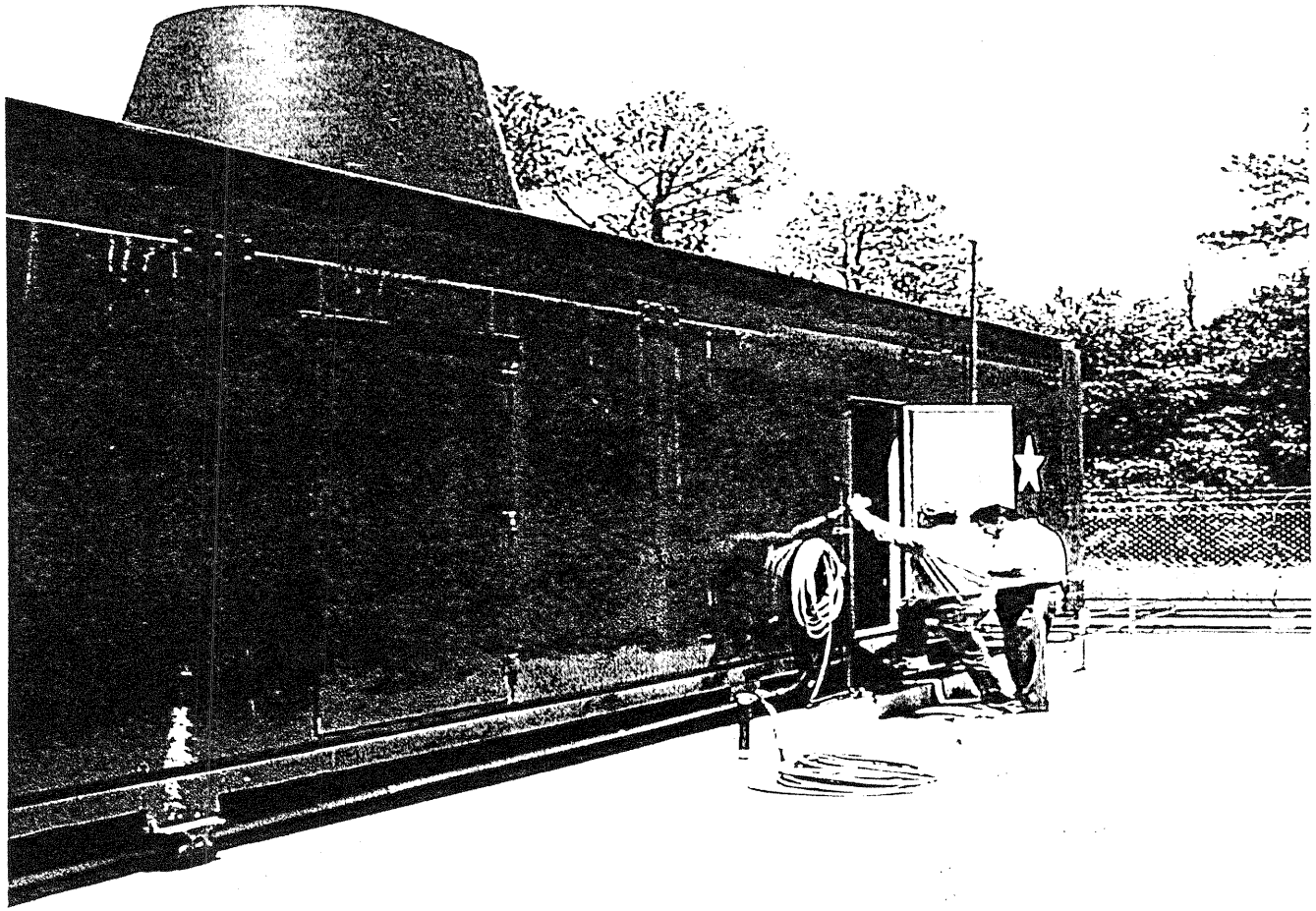
UTILITY TIE BREAKER: TROUBLEDSHOOTED TO REPLACE WIRES & BEARINGS. VOLTAGE – 4160 AC



TRANSFORMERS: NO WORK PERFORMED. MONITORED TEMP. GAUGES FOR OVERHEATING. VOLTS 4160-12500 AC

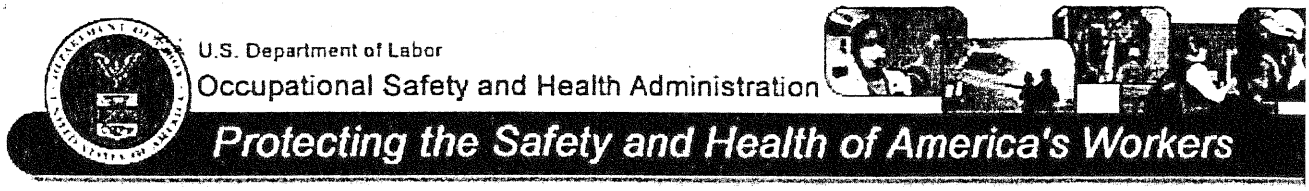


GENERATOR/POWER PLANT: REPLACED GOVERNORS (BOX WITH KNOBS). VOLTAGE – 120 DC.



GENERATOR/POWER PLANT: MONITORED AIR TEMP, OIL & COOLANT. WORKED ON STARTERS, ADDED OIL, CHANGED FAN BEARING ASSEMBLY, PRE-LUBE PUMPS, FUEL PUMPS.

V



[Text Only]

Standard Interpretations 03/26/1996 - Electric power generation, transmission, and distribution standard.

Standard Interpretations - Table of Contents

• **Standard Number:** 1910.269

March 26, 1996

Mr. Michael L. Harbaugh
President
S.A.L.C.O.M. Inc.
2717 Caronado
Great Bend, Kansas 67530

Dear Mr. Harbaugh:

This is in response to your January 20, 1995, letter requesting clarifications and interpretations of the electric power generation, transmission, and distribution standard, 29 CFR 1910.269. Please accept our apology for the delay in responding.

Your January 20 letter redraft of questions previously sent in your August 23, 1994, letter is acknowledged. The Northwest Public Power Association (NWPPA) interpretations and methods of compliance offered with each of the questions in your January 20 letter also are acknowledged. The NWPPA interpretations and methods of compliance were used as a reference in the formulation of our replies to your questions. Please be advised that compliance with Occupational Safety and Health Administration (OSHA) standards is determined on a workplace by workplace basis. Also, 1910.269 is a performance based standard. Your questions and our replies follow.

Question 1:

Does an employee have to go through a recognized apprenticeship training program to be considered a qualified employee who is

inside the manhole with a task that one employee cannot perform alone. For example, if a second employee is needed to help lift a piece of equipment into place, the attendant could enter only for the amount of time that is needed to accomplish the task. However, if significant portions of the job require the assistance of a second worker in the manhole, the attendant would not be permitted to remain in the manhole for the length of time that would be necessary, and a third employee would be required.

Because the hazards addressed by paragraph 1910.269(t)(3) are related primarily to electric shock, allowing the attendant to enter the manhole briefly has no significant effect on the safety of the employee the attendant is protecting. In case of electric shock, the attendant would still be able to provide assistance. If other hazards are believed to endanger the employee in the manhole, paragraph 1910.269(e)(7) would apply and the attendant would not be permitted to enter the enclosed (manhole) space. Other hazards include those inside (for example, hazardous flammable vapors should the ventilation system fail) and outside (for example, hazardous traffic) the manhole.

Question 38:

Under what conditions, if any, can an employer allow an unqualified employee or unqualified person to enter energized substation areas and be in compliance with paragraph 1910.269(u)?

Reply:

Electric power generating stations and transmission and distribution substations typically have areas containing energized electric lines and equipment. Unless the energized lines or equipment are guarded sufficiently, it is unsafe for unqualified persons to enter these spaces.

Paragraphs 1910.269(u)(4)(i)(A) through (C) and 1910.269(v)(4)(i)(A) through (C) set requirements for spaces within substations and generating stations, respectively, that are acceptable for unqualified persons to enter. Under paragraph 1910.269(u)(4)(ii) through (v) and 1910.269(v)(4)(ii) through (v), areas not meeting these requirements are restricted from entry by unqualified persons. The board members you identified in your letter are considered unqualified persons for the purposes of the 1910.269 standard.

Employers may train employees as qualified employees for the purpose of entering and working within restricted areas of generating stations and substations. While the training for these

employees must meet paragraph 1910.269(a)(2)(ii), such training need not be as comprehensive as the training provided normally to a qualified electrical worker. These "qualified" (nonelectrical) employees must have the following minimum training:

(1) They must know what is safe to touch and what is not safe to touch in the specific areas they will be entering (paragraph 1910.269(a)(2)(ii)(A)),

(2) They must know what the maximum voltage of the area is (paragraph 1910.269(a)(2)(ii)(B)),

(3) They must know the minimum approach distances for the maximum voltage within the area (paragraph 1910.269(a)(2)(ii)(C)), and

(4) They must be trained in the recognition and proper use of protective equipment (note: only fully qualified electrical employees may install insulating equipment on energized parts) that will be used to provide protection for them and in the work practices necessary for performing their specific work assignments within the area (see the definition of "qualified employee" under paragraph 1910.269(x)).

Until these "qualified employees" have demonstrated proficiency in the work practices involved, they are considered to be employees undergoing on-the-job training and must be under the **direct supervision** of a qualified person at all times. According to the definition of "qualified employee," the employee also must have demonstrated an ability to perform work safely at his or her level of training. It is expected that an orientation familiarizing the employee with the safety fundamentals given here will be conducted **before** an employee undergoing training is allowed to enter a restricted area.

Question 39:

With reference to Question 38 above, can unqualified employees tour a substation involving energized, electric supply lines or equipment when under the direct supervision of a qualified employee or qualified person? If so, what conditions apply?

Reply:

The reply to your question is no. However, an employee can be trained and then (as discussed in our reply to question 2) certified as qualified to tour a particular substation.

Question 40:

W

trained in compliance with paragraph 1910.269(a)(2) to perform his job, for example, as a lineman?

Reply:

No. In paragraph 1910.269(x), a qualified employee is defined as one who is knowledgeable in the construction and operation of the electric power generation, transmission, and distribution equipment involved in his or her job, along with the associated hazards. Having power line workers go through an apprenticeship training program may not provide all the training required under paragraph 1910.269(a)(2)(ii). The employer must ensure that the program used includes all applicable training elements required under paragraph 1910.269(a)(2)(ii) and work practices throughout 1910.269.

For example, minimum approach distances covered by the training program must conform to those required under 1910.269 rather than those required under Subpart V of the 29 CFR 1926 Construction Standard. (The Subpart V minimum approach distances have been commonly used in apprenticeship programs over the past 20 years.) Additionally, even if the apprenticeship training program generally conforms to paragraph 1910.269(a)(2)(ii), the employer must supplement this with instruction in practices which specifically address safety hazards to which employees are potentially exposed in the particular workplace. Most often, such training is accomplished on the job.

Question 2:

If the answer to Question 1 is no, what training is required to be considered a qualified employee?

Reply:

The training required depends on what job tasks the (lineman, meter reader, substation technician, serviceman, etc.) employee is required to perform. All employees must be trained in and familiar with the safety requirements in paragraph 1910.269(a)(2)(i). Also, qualified employees must be trained and competent in the safety requirements in paragraph 1910.269(a)(2)(ii). The electric power generation standard cannot specify requirements for every hazard the employee faces in performing his or her job. The employer must fill in the gaps by training the employee in hazards anticipated during the course of jobs the employee is expected to perform.

Question 3:

An employee has 10-25 years of on-the-job training on which there are no records. In this case, what basis could the employer use to certify that the employee has received training required by paragraph 1910.269(a)(2)?

Reply:

An acceptable way of certifying training would be for the employer to certify that an employee has completed on-the-job training that complies with the applicable requirements under paragraphs 1910.269(a)(2)(i) and (a)(2)(ii). This certification can only be given when the employee demonstrates proficiency in the work practices involved.

Question 4:

An employer hires an employee on a temporary (1 week to 6 months) basis. To what extent must the employer determine that the temporary employee has been trained, for example, through union affiliation, to perform the job for which hired? Would the extent of this determination be the same for an employee hired on a permanent basis?

Reply:

Whether hired on a permanent or a temporary basis, employees must be trained as required under paragraphs 1910.269(a)(2)(i) and (a)(2)(ii). As specifically required in paragraph 1910.269(a)(2)(vii), employees must demonstrate proficiency in the work practices involved before the employer may certify that the employee has received the training.

As outlined in your letter, an employer could request documentation from the union (or previous employers) or could institute a testing program to ensure that the employee has been trained. Regardless of the method chosen, however, the employer must still certify that the required training has been provided "when the employee has demonstrated proficiency [to the employer] in the work practices involved." This could be accomplished by close supervision during a short probationary period, with the supervisor when certifying that the employee has demonstrated proficiency in the work practices involved. Additionally, the employer could hold training orientation in workplace-specific practices and hazards for new and temporary employees who have been trained elsewhere.

X

1910.269(a)(1)(iii)

This section applies in addition to all other applicable standards contained in this Part 1910. Specific references in this section to other sections of Part 1910 are provided for emphasis only.

1910.269(a)(2)

"Training."

1910.269(a)(2)(i)

Employees shall be trained in and familiar with the safety-related work practices, safety procedures, and other safety requirements in this section that pertain to their respective job assignments. Employees shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole top and manhole rescue), that are not specifically addressed by this section but that are related to their work and are necessary for their safety.

1910.269(a)(2)(ii)

Qualified employees shall also be trained and competent in:

1910.269(a)(2)(ii)(A)

The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,

1910.269(a)(2)(ii)(B)

The skills and techniques necessary to determine the nominal voltage of exposed live parts,

1910.269(a)(2)(ii)(C)

The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed, and

..1910.269(a)(2)(ii)(D)

1910.269(a)(2)(ii)(D)

The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment.

Note: For the purposes of this section, a person must have this training in order to be considered a qualified person.

1910.269(a)(2)(iii)

The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices required by this section.

1910.269(a)(2)(iv)

An employee shall receive additional training (or retraining) under any of the following conditions:

1910.269(a)(2)(iv)(A)

If the supervision and annual inspections required by paragraph (a)(2)(iii) of this section indicate that the employee is not complying with the safety-related work practices required by this section, or

1910.269(a)(2)(iv)(B)

If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use, or

1910.269(a)(2)(iv)(C)

If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Note: OSHA would consider tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

1910.269(a)(2)(v)

The training required by paragraph (a)(2) of this section shall be of

Y

Bennett, Frank D.

From: Pruiett, George S EAMC [George.Pruiett@se.amedd.army.mil]
Sent: Monday, June 10, 2002 1:35 PM
To: 'Bennett, Frank D.'
Cc: Pruiett, George S EAMC; Gregory Mims; Jordan, William R EAMC
Subject: RE: Test Message for Gen Plant Ops

RE: Personal Protective Equipment (PPE) Training, UMCS Personnel, Fort Gordon, GA

Mr. Bennett, I've completed a review of Industrial Hygiene (IH) workplace health hazards data on file a this office and did not find PPE training records before Nov 2000. IH files did indicate that UMCS personnel were being provided safety shoes, ear muffs/plugs, safety glasses, coveralls, and were enrolled in local Occupational Health Medical Surveillance Program. Program includes requiring personnel to view a training video on the use of hearing protection, annual audiogram, and fit testing of ear plugs. On/about March 1997 IH initiated a PPE Training Certification program on PPE to document compliance with OSHA PPE standard. The program used a sign-In sheet and training video on PPE. Mr. Pavliscsak was one of the first supervisors on Fort Gordon, GA to training his personnel using this method. I personally signed-out the video to Mr. Pavliscsak but did not find a copy of the document on file in IH. Thanks, George S. Pruiett, Industrial Hygiene Program Manager, EAMC.

-----Original Message-----
From: Bennett, Frank D. [mailto:bennettf@gordon.army.mil]
Sent: Wednesday, June 05, 2002 9:02 AM
To: Jordan, William R EAMC; 'bennettf@gordon.army.mil'
Cc: Pruiett, George S EAMC; Gregory Mims
Subject: RE: Test Message for Gen Plant Ops
Importance: High

Mr.Jordan,
I am with the Internal Review Office on post and have been working on a request from the Office of Special Counsel (OSC) concerning safety allegations made by former UMCS personnel at the installation power generation plant.

OSC has requested us to determine if Personal Protective Equipment (PPE) training was conducted prior to NOV 2000. Mr. Pavliscsak, the former supervisor of UMCS, told me that he thought your operation had provided the training but was not sure when.

If the training was conducted, I need to know When (how many times), Who attended, and What it Covered. I will need whatever documentation you have to support that the training was conducted for support to the response to OSC.

We have a very limited time for responding to OSC so your prompt assistance with this is greatly appreciated. If you have any question, please let me know.

Thanks,
Frank Bennett
Auditor
Internal Review Office
791-2923/2972

-----Original Message-----

From: Jordan, William R EAMC [mailto:William.Jordan@se.amedd.army.mil]
Sent: Wednesday, June 05, 2002 8:05 AM
To: 'bennettf@gordon.army.mil'
Cc: Pruiett, George S EAMC
Subject: Test Message for Gen Plant Ops

Please send me and/ or Mr Pruiett a message on how we can be of assistance in the training records at the BLDG 14600 Generator Site area.

Z

terials covered by this SOP include, but are not limited to:

a. Fuel oil
b. Engine lubricating oil
c. Engine coolant
d. Governor oil
e. Battery acid

Operators should monitor the equipment/tanks to prevent any spillage.

a. Monitor fuel tank levels and exposed fuel oil lines and devices for possible overflow or leaks.

b. Monitor floors and auxiliary equipment for oil or coolant leaks.

c. Monitor the engine mounting pads and the ground immediately adjacent to the pads for spills.

d. Monitor oil drums and other stored liquid containers for leaks.

In the event of a minor and easily contained spill NOT requiring sistance:

Immediately act to contain the spill.
1) Stop the leak!
2) Use absorbent materials to contain/dam the spill.
3) Use absorbent materials to soak it up.

b. If the spill can be contained in the equipment area or on external pads and easily cleaned up, notify ENRMO as soon as possible during normal duty hours at 791-2403/2327/2397 of material, amount + actions taken.

c. ~~Double bag~~ contaminated materials ~~in plastic trash bags~~ should be placed in a drum for appropriate disposal. ~~(Landfill)~~

d. Record all actions in the UMCS log book. In addition, when applicable, post in the Generator log. Verbally report incident to your immediate supervisor.

In the event of a spill requiring assistance:

a. Notify the FIRE DEPARTMENT SPILL RESPONSE TEAM at 17/791-3168/2445/4141. The Response Team will notify ENRMO.

b. Immediately act to contain the spill.
1) Stop the leak!
2) If possible, use absorbent materials to contain the spill

c. After the Response Team arrives, render assistance if requested. When no further assistance is required return to normal duties.

Record all actions in the UMCS log book. In addition, when applicable, post in the Generator log. Verbally report incident to your immediate supervisor.

marked "SPILL DEBRIS" + START DATE

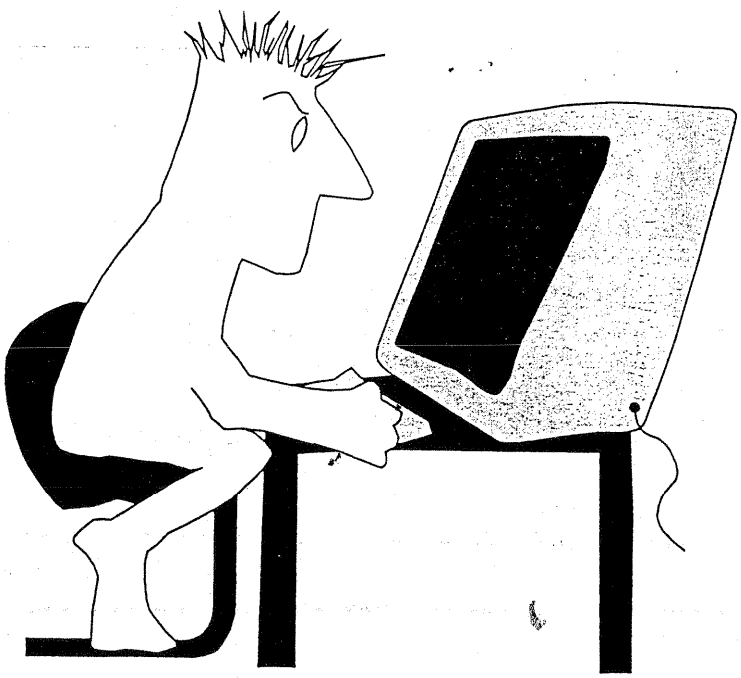
A drum log should be maintained. Record what is added to the drum date + amount

over →

After drum of spill debris is full, Contact ENRMO for required action for sampling and turn-in.

1

Utilities Monitoring and Controls Systems (UMCS)



Standing Operating Procedures (SOP)

MAINTENANCE STANDING OPERATING PROCEDURES (SOP) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS)

TABLE OF CONTENTS

Annex A

Appendix 1 Introduction
Appendix 2 Utility Monitoring and Control Systems Maintenance Concept
Appendix 3 Maintenance Programs
Appendix 4 Organizational Maintenance
Appendix 5 Direct thru Limited Depot Maintenance
Appendix 6 Maintenance Professional Development
Appendix 7 Tool Control and Tool Room Operations

Annex B

Appendix 1 Safety
Appendix 2 Safety (Personal Protective Equipment)
Appendix 3 Safety (Hand Tools and Power Tools)
Appendix 4 Safety (Safe Clearance – LOCKOUT/TAGOUT)
Appendix 5 Hazardous Waste/Spill Contingency

Annex C

Appendix 1 Source of Assistance
Appendix 2 Controlled Exchange
Appendix 3 Equipment Improvement Report
Appendix 4 High Voltage Glove Testing
Appendix 5 Generator Painting

Annex D **Equipment Identification Markings (EIM)**

Annex E

Appendix 1 Plant Operations
Appendix 2 Coolant System Flush Procedure
Appendix 3 Related Publications

ANNEX A (MAINTENANCE) APPENDIX 1 (INTRODUCTION) TO THE UTILITIES MONITOR AND CONTROLS SYSTEMS (UMCS) SOP

1. Purpose.

To provide guidance to Management and Staffs at all levels concerning the responsibilities and procedures for an effective maintenance program. When the procedures described herein conflict with regulations or directives from higher headquarters, the procedures described by that headquarters would apply.

2. Scope.

This document is applicable to elements assigned to the Utilities Monitor and Controls Systems (UMCS).

3. General.

Maintenance is a management responsibility. It must be accomplished in a manner, which ensures effective and efficient utilization of personnel, resources and time. This maintenance plan is developed to achieve the Army goal of 50% maintenance manpower utilization. (REF.: Memorandum, FCJ4-SMM, dtd 23 Mar 90, Subject: Maintenance Manpower Utilization).

4. Management and Staff Responsibilities.

a. Management and supervisors at all levels will ensure equipment operators have adequate time and resources to perform maintenance operations to standards. Management emphasis will ensure maintenance time is productively utilized. Maintenance scheduling will be included on the master work schedules.

b. The Facilities Engineering Branch responsibilities are as follows:

(1) Ensuring the Johnson Controls World Services (JCWS) provides timely and responsive maintenance (direct through limited depot) of organizational equipment IAW operational procedures outlined in this SOP.

(2) Advising the Director of Public Works, of the maintenance status of all equipment the UMCS supports. Particular attention will be paid to sensitive items and those additional systems critical to the UMCS Operations and the Fort Gordon Power Plant.

(3) Advising the Director of Public Works, of any critical equipment or repair parts shortages or situations, which could adversely affect the maintenance operations, and readiness of the Power Plant.

5. Revision.

This SOP will be reviewed for possible revision at least annually by the UMCS Manager and the Power Systems Engineer. Pen and ink changes will be posted when published.

6. Implementing Instructions.

Personnel of the UMCS will maintain a copy of this SOP and comply with its provisions

7. UMCS Responsibilities:

a. References:

(1) AR 750-1, Army Materiel Maintenance Policies.

(2) AR 710-2-1.

(3) AR 25-400-2, MARKS.

(4) DA Pam 738-750, TAMMS

(5) DA Pam 750-35, Functional User's Guide to Motor Pool Operations.

(6) TM 10-, 20, P-series for all assigned equipment

(7) Unit Supply Update

(8) Maintenance Management Update

(9) CFR 1910

b. Purpose: To provide guidance on the responsibilities and procedures for matters of UMCS level maintenance actions with the Facilities Engineering Branch (FE). If and when the procedures described herein conflict with directives from higher headquarters, the procedures(s) dictated by that headquarters would apply.

c. Scope. This annex applies to all personnel assigned or attached to, or otherwise conducting or participating in operations under the control or jurisdiction of the FE/UMCS.

d. Duties and Responsibilities: Maintenance is a management responsibility. Responsibility follows the chain of command, which unifies the efforts of unit personnel to function as a team. Maintenance-related duties of UMCS personnel include, but are not limited to the following:

(1) UMCS Manager/Maintenance Officer (MO): The MO will oversee maintenance coordinator functions within UMCS, maintenance of all property is performed expeditiously by the most economical means, and IAW management guidance; identify maintenance requirements; prepare and implement maintenance sub-plans; assure that maintenance data are maintained and transferred to permanent records; monitor and evaluate maintenance program; and satisfy all upward reporting requirements through maintenance channels.

(2) Maintenance OIC: The maintenance OIC is an individual designated in writing by the UMCS Manager/MO. The maintenance OIC will ensure all maintenance data is maintained and transferred to permanent records; track and comply with warranty requirements; oversee dispatching functions; assure that scheduled and unscheduled maintenance is performed; ensure that section personnel attend scheduled maintenance; spot check operator level maintenance; maintain strong maintenance assistance through personnel support channel; control flow of work request parts, scheduled maintenance, and repair operations of organizational equipment; oversee AOAP; supervise the safety program, supervise equipment/facility physical security; supervise key control procedures; supervise quality control of completed maintenance; inspect equipment and individually assigned equipment i.e. personal protective equipment, and tools; satisfy timely and accurate upward reporting requirements to the MO; determine personnel and equipment resources and their specific requirements for weekly maintenance; maintain operator/utilization records; receive PMCS and determine if equipment is operational and safe for use.

(3) Operators/Crew will be assigned as primary and alternate operators/crew to each piece of assigned equipment; **be licensed on all equipment within their section; train and license section personnel on assigned equipment; ensure that operators/crew have the applicable TM 10-, 20-, and P-series**; oversee operator PMCS and other maintenance operations related to assigned equipment; review and verify that all DA Form 2404 are properly filled out and accurately represent the status of assigned equipment; ensure that operator/crew level corrective actions are performed in a timely and thorough manner; ensure the combat readiness of all assigned equipment; ensure the physical security and cleanliness of all assigned equipment and areas of operation; support unit safety program within area of operation. Maintain records in a neat and orderly manner IAW DA Pam 738-750; receive DA Form 2404 from the MO; enter faults and corrective actions onto the DA Form 2404; provide timely and accurate DA Form 2406 information to the MO; order required class IX repair parts as authorized by the Maintenance Allocation Chart (MAC) and approved by management found in TM 20 series; maintain the document control register for class IX parts; track, receive, store, and issue class IX repair parts in a timely and accurate manner; turn in and direct exchange parts as required; perform duties as dispatcher; maintain a neat, clean and orderly office area.

ANNEX A (MAINTENANCE) APPENDIX 1 (INTRODUCTION) TO THE UTILITIES MONITOR AND CONTROLS SYSTEMS (UMCS) SOP

Operators/Crew will operate assigned equipment within its designed capabilities and in a safe manner; perform "before", "during" and "after" PMCS from the applicable TM 10 series; perform operator/crew level periodic maintenance; perform corrective maintenance actions IAW Maintenance Allocation Chart (MAC), found in TM 10 series, maintain equipment Basic Issue Items (BII), prepare and maintain operator forms and equipment records; correctly annotate all required information on the DA Form 2404, ensure that assigned equipment is clean, "on-line" with drip pan; perform maintenance actions including, but not limited to the following:

(a) Inspection by sight or touch of external and other easily accessible components per the TM 10 and 20 series.

(b) Lubrication, cleaning, preserving (to include spot painting), tightening, replacement, and minor adjustment authorized by the MAC and management.

(c) Diagnosis and fault isolation as authorized by the MAC and management.

(d) Replacement of unserviceable parts, modules, and assemblies as authorized by the MAC and management.

(e) Verification of faults and level of repair of unserviceable materiel prior to service or evacuation.

(f) Evacuation to the appropriate maintenance support activity of unserviceable repairable's beyond the MAC authorization to correct/repair.

(g) Assist maintenance support with scheduled services of assigned equipment, as needed to perform operator/crew level.

(h) Accomplish all tasks required by the AOAP.

ANNEX A (MAINTENANCE) APPENDIX 2 (MAINTENANCE CONCEPT) TO THE UTILITY MONITOR AND CONTROLS SYSTEMS (UMCS) SOP

1. Maintenance Organization.

a. Low densities of equipment, seasonal usage, and personnel dispersion require strict responsibility for maintenance. This places heavy reliance on operators and first line supervisors to perform routine preventive maintenance checks and services (PMCS) and authorized repairs.

b. UMCS will procure required Class IX items for authorized repairs with backup support provided by the Prime Power Loan Program Officer.

2. DS Thru Limited Depot Maintenance Organization.

The JCWS provides direct through limited depot support maintenance of prime power assets.

ANNEX A (MAINTENANCE) APPENDIX 3 (MAINTENANCE PROGRAMS) TO THE UTILITIES MONITOR AND CONTROLS SYSTEM (UMCS) SOP

1. **General**.

The following programs facilitate maintenance operations and assist in achieving maximum efficiency in equipment readiness and personnel utilization.

2. **Inspection and Evaluation**.

a. The continuous, systematic inspection of all equipment is a vital element of the UMCS maintenance program. Inspections provide management with information required making improvements in the operational capability of the organization. Inspections are a quality control check of the sections organizational maintenance performance and readiness.

b. Formal Inspections.

(1) UMCS is subject to formal inspections conducted by the Manager or his designated representative. The inspection may cover all aspects of organizational maintenance management. Inspections will be conducted under the provisions of AR 20-1.

(2) Maintenance operations of the organization will be inspected under the Managers Inspection Program (MIP). The UMCS manager will conduct formal inspections of the UMCS personnel. In addition to scheduled inspections, managers are encouraged to conduct inspections as often as they feel necessary.

c. Informal Inspections.

(1) Informal inspections are part of the daily responsibilities of all managers and crucial to a sound maintenance program.

(2) Spot check inspections help determine the adequacy and effectiveness of organizational maintenance. Preventive maintenance indicators will be checked to determine problem areas. DA Pam 750-1, FM 43-1 TEST and 43-1-1 TEST are excellent guides for planning and conducting these inspections.

(3) PMCS inspections are the cornerstones of the Army maintenance system. Readiness of equipment depends on the operator's ability to identify and accurately report shortcomings. Faults beyond the operator/organizational level will be annotated on a DA Form 5988-E and presented to the UMCS manager.

d. A successful preventive maintenance program depends on the following management and supervisory actions:

(1) Well-planned maintenance training procedures should explain and demonstrate operator tasks as outlined in maintenance manuals. Ensure all required publications are available, up to date and used.

(2) Ensure operators complete thorough before, during, and after operations checks to keep equipment ready for operations at any time.

(3) Ensure that operators understand and follow all supervisory guidance during all PMCS operations.

(4) Ensure that UMCS manager receives reports on all completed PMCS operations.

3. **Rust Retardation Program**.

a. General - The on-going mission of equipment maintenance includes preventive measures taken to protect equipment from deterioration caused by rust.

b. UMCS manager will ensure operators identify rust problem areas and bring them to the attention of the organizational management for corrective action.

c. Rust retardation and rust prevention measures are critical to equipment readiness and maximum useful life of all equipment.

d. Operator Responsibility:

(1) Keeping equipment free of mud and grime.

(2) Keeping drain holes clear to avoid standing water in equipment.

(3) Removal of rubber mats and painting the floor with non-skid/anti-rust paint.

(4) Application of anti-rust compound to equipment when required.

e. Preliminary Procedures

(1) Operators will limit their application of rust inhibitor to those areas, which can be readily treated with a paintbrush or spray gun without dismantling components.

(2) Equipment will be inspected prior to application of rust inhibitor. Equipment requiring major bodywork will be job ordered to the 249th Engineer Battalion Prime Power's Heavy Maintenance Section (HMS), JCWS, or designated support maintenance for repairs. Support maintenance or HMS will coat repaired areas with rust inhibitor prior to releasing the equipment to the UMCS.

f. Rust inhibitor will NOT be applied to the following areas. They will be protected by taping and masking if a spray gun is used.

(1) Engine and engine components

(2) Exhaust systems

(3) Rubber hose

(4) Electrical wires

g. Rust inhibitor supplies and application instructions.

(1) Rust Inhibitor

DA Form 1348-6
NOMEN: OSPHO, Anti Rust Primer
NSN:
Doc Ident: AOD
Unit of issue- 5 gal
Price - $48.00

(2) Supplies and Equipment

NSN	DESCRIPTION	QTY
7920-00-291-5815	Wire Brush	1ea
5120-00-221-1536	Putty Knife	1ea
4240-00-269-7912	Face Shield/Goggles	1ea
	Gloves, Oil and chem. resistant	1ea
	Apron, Shop Coat or Coveralls	1ea

(3) Other specific items may apply.

h. Application Instructions:

(1) Remove scale, dirt and other accumulation with wire brush. If surface is greasy or oily, clean with cleaning solvent. Sand blast if authorized at your level.

(2) Ensure equipment is completely dry before applying rust inhibitor.

(3) Apply a single coat of rust inhibitor. Let stand approximately 12 hours before applying paint.

(4) If rust is exceedingly heavy, two coats of rust inhibitor will be necessary to thoroughly penetrate and blacken the surface to be painted. If area treated does not have a deep black appearance after the first application, a second coat should be applied.

(5) Inhibitor dries to a powdery, grayish-white texture, indicating the inhibitor has reacted with the metal. This powder is harmless, but should be brushed off before painting.

4. **Army Oil Analysis Program**.

a. Participation in the AOAP is mandatory, reference AR 750-1, Army Material Maintenance Policies.

b. Procedures for participating in the AOAP are outlined in DA PAM 738-750 Chapter 4.

c. UMCS will have an AOAP monitor.

d. The UMCS AOAP monitor is an individual designated in writing by the UMCS Manager.

e. The AOAP will be conducted between the AOAP laboratory and the user unit.

f. UMCS Manager will ensure, upon receipt of a DA Form 3254-R (Oil Analysis, Recommendation and Feedback) from the AOAP lab, the subject equipment is placed in a Non Mission Capable (NMC) status until the required maintenance action is completed.

5. **Modification Work Orders**.

a. Modification to Army equipment will be designated as mandatory modification or other alteration (non-mandatory). Detailed configuration changes are contained in AR 750-10.

b. Mandatory modification is authorized for application by publication of a Department of the Army Modification Work Order (DAMWO).

c. A major and normally applied Modification Work Order (MWO) is developed, programmed, procured, funded, monitored and applied by the Army Material Command (AMC).

d. MWO's are coordinated by AMC agencies with FORSCOM and installations or activities. A Memorandum of Understanding (MOU) is used for both contractor application of MWO's and in-house applications of MWO's.

e. The UMCS Manager is the MWO coordinator and is responsible for the following actions:

(1) Maintaining control of equipment modifications.

(2) Coordination of correspondence and plans for MWO applications to Prime Power equipment and ensuring required approvals have been obtained from appropriate headquarters.

(3) Validating the equipment listing for the application of MWO's.

(4) Establishing and maintaining DA Pam 738-750 configuration records on assigned equipment.

(5) Finalizing individual MOU's for each system or individual item prior to application of the MWO and maintaining accountability for all MWO kits.

6. **Incentive Award Program**.

a. A good incentive award program will be established to recognize both individual and organizational maintenance accomplishments. It is essential the chain of command be involved in the incentive award program to ensure effective recognition for achievement.

b. There are several alternatives available to management to recognize accomplishments. A positive program of rewards for a "job well done" is limited only by the manager's imagination. The following are some examples:

(1) Commanding General's coin.

(2) Letter of Commendation from the chain of command.

(3) Certificate of Achievement.

(4) Impact Award (i.e., Army Achievement Medal, etc.).

(5) Trophies and/or plaques recognizing individual(s) or the organization for maintenance achievement.

7. **Training and Licensing of Operators**.

a. Training and licensing of operators is a management responsibility. The FE branch must develop a program for training and licensing drivers (see APPENDIX T to this SOP for sample of Driver Training Program).

8. **Operator Assignment**.

a. Each piece of equipment will have an assigned operator.

b. All equipment, including basic issue items (BII) will be hand receipted to the assigned operator.

9. **Material Readiness Reporting**.

a. Purpose: To provide guidelines for the preparation of DA Form 2406 (Material Condition Status Report).

b. Applicability: These guidelines apply to all personnel of the UMCS Operations. In case of conflict between this chapter and publications from higher headquarters, the latter will govern.

c. References

(1) AR 220-1

(2) AR 700-5

(3) AR 700-138

(4) DA PAM 738-750

(5) SB 700-20

d. Explanations

(1) Daily Pacing Item Report - Provides the management group (FE) with pertinent information on the true readiness of the organization in terms of the generator sets.

(2) Material Condition Status Report (DA Form 2406) - Refers to equipment listed in AR 700-138 for wheeled vehicles and other common equipment.

(3) System - A combination of separately authorized and/or issued items, dependent on each other for operation and are considered a single unit for both material and equipment readiness reporting.

e. Guidelines - DA Form 2406 (Monthly)

(1) UMCS will file a monthly report (DA Form 2406 by 1500 hours 2 working days prior to the 15th of each month. The coverage dates are from the 16th of the previous month through the 15th of the current month. Submitting individual must project the last three days of the reporting period. Reporting individual will submit DA Form 2406 to UMCS Manager via email.

(2) MO will submit copies received from reporting individual to the facilities engineering Manager, NLT COB on the 15th of each month.

f. Guidelines - DA Form 2406 (Reverse Side)

(1) UMCS will submit a weekly report (DA Form 2406 - reverse side) by 1500hrs on the first working day of each week. The coverage dates are from 1601 hours on Sunday through 1600 hours the following Sunday. The reporting individual will submit DA Form 2406 (reverse side) to UMCS Manager via email.

(2) UMCS Manager will submit copies received from reporting individual to the Facilities Engineering Manager by 1300hrs the second working day of each week.

g. Daily Pacing Item Report

(1) When a pacing item is NMC, a report will be submitted telephonically to UMCS Manager NLT 1500 hours daily. This report applies to pacing items only. Required information includes: nomenclature, model, serial number, bumper number, number of days NMC, level of maintenance, and current shop and parts status. Reports are not required on weekends or holidays.

(2) The Pacing Item Report does not replace the weekly equipment status report.

h. All Non-Mission Capable organizational level repair parts requisitioned will be listed on the backside of the DA Form 2406 with current part status. The UMCS Manager or his/her designated representative will verify this report prior to submission.

10. **Equipment Turn-In Procedures**.

a. References:

(1) AR 710-2

(2) AR 750-1

(3) AR 735-11

(4) DA Pam 738-750

(5) DA Pam 738-751

(6) FORSCOM reg. 700-5

b. Purpose: To stipulate actions for turn-in of equipment no longer required by using units, to the 249th Engineer Battalion (PP), Loan Program Officer.

(1) Equipment turned in will meet maintenance standards contained in applicable TM - 10/20 PMCS tables.

(2) PMCS will be performed. Scheduled services will be performed if more than half the service interval has elapsed. Equipment enrolled in the AOAP will have a sample tested unless one has been tested within the previous 30 days.

(3) PMCS inspection results will be recorded on DA Form 5988-E and submitted with the equipment.

(4) All appropriate maintenance and historical records will accompany the equipment. Generator logbooks will be transferred with the generator.

(5) Discrepancies identified at the acceptance inspection and required documents completed by the losing unit will be reconciled with each unit at the time of the final verification inspection

ANNEX A (MAINTENANCE) APPENDIX 4 (ORGANIZATIONAL MAINTENANCE) TO THE UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. **General**.

Management will provide adequate time during the day for the performance of PMCS and corrective maintenance of all items of equipment. The criticality of material readiness will be considered equal to that of personnel and training readiness. A proper balance will be maintained among maintenance, training and other requirements essential to over-all Section readiness. Management must provide leadership and emphasis for this to occur.

2. **Command Maintenance Program**.

a. To allow personnel to fully accomplish their maintenance mission, the time allocated for maintenance will be at least four hours weekly. The responsible supervisors will ensure the equipment and materials needed are available. These can include lubricants, distilled water, rags, air gauges, paint for spot painting, sand paper, etc. Supervisors are encouraged to present an instruction period for motivation and training of personnel prior to beginning the actual maintenance of equipment. These periods can be particularly helpful to increase cohesion.

b. Maintenance training includes formal and informal classes taught by UMCS personnel, as well as instruction presented by MAIT and other subject matter experts. The maintenance period is the hands on portion of maintenance training. Maintenance instruction classes will be integrated into the UMCS training program as prime time training events and will cover operator and organizational maintenance, as well as maintenance management and supervision.

c. The maintenance officer has supervisory responsibility for the maintenance program. Responsibilities include, but are not limited to monitoring the equipment readiness rate, supervising and revising the organizational maintenance plan and evaluating the organizational maintenance program. Additionally, the maintenance OIC monitors the following: management of all excesses; status of maintenance personnel; critical class IX requisitions and class IX expenditures. Maintenance periods **MUST** be properly supervised by first line supervisors to be effective.

e. Basic instruction for operator maintenance will include, but is not limited to, equipment fault detection, reporting and correction of operator/organizational deficiencies for specified equipment.

3. **Maintenance Forms and Records**.

a. Equipment records will be maintained IAW DA Pam 738-750, The Army Maintenance Management System (TAMMS). This PAM and the equipment record folder provide excellent information for personnel training. Supervisors must become proficient in the various TAMMS forms in order to train subordinates. Assistance in the preparation and

maintenance of equipment records and maintenance shop management is available through your supporting MAIT.

4. **Preventative Maintenance Checks and Services**.

a. Equipment operators and first line supervisors are responsible for performing before, during and after operations checks on equipment for which they are responsible. Proper completion of these checks and services, IAW applicable TM's, is essential to well maintained operational equipment.

b. PMCS will be performed at the intervals prescribed in the appropriate TM. Additionally, all required PMCS will be performed prior to operating or dispatching equipment. DA Form 5988-E will be used to record all deficiencies noted during PMCS.

c. When faults are noted which are beyond the level of maintenance authorized, the organizational maintenance personnel will ensure all faults/deficiencies at their level of maintenance are corrected. Authorization can be obtained to perform the next level of maintenance if the organization has the capability to effect the repairs. For prime power equipment, authorization will be obtained from the UMCS Manager.

5. **Scheduled Services**.

a. Scheduled services are essential to maintaining Army equipment. Prior planning is crucial to an effective services program. Incomplete services, failure to perform services and long-delayed services result from poor time management, reduce equipment availability and add to servicing backlogs.

b. Workload planning is essential to effective maintenance management. Each quarter, required services for the next 12 months will be analyzed to ensure no more than one-sixth of the "S" (semi-annual) services and no more than one-third of "Q" (quarterly) services fall in any single month. Periodic review of maintenance services is necessary to prevent "bunching". In order to keep services evenly distributed throughout the year, it may be necessary to perform some services early. Once forecasts are developed and balancing of requirements is accomplished, the forecast will be coordinated with the UMCS Operations Section. Scheduled services will be reflected on the work schedules.?

c. Once service schedules are finalized, personnel will plan for repair parts requirements. Ample supplies will be maintained to perform two complete 300 hours services for each generator. Upon receipt, the administrative number and due date of service will be annotated on the part and placed in the equipment bin.

d. Operator/personnel will be present during the conduct of all services. In addition to services, all required repairs and discrepancies noted will be corrected.

e. Scheduled services required tests, lubrication and oil sampling will be accomplished within the variances prescribed in DA PAM 738-750 and applicable Technical Manuals.

f. Services will be conducted on military equipment IAW the procedures stated in the appropriate technical manual and lubrication order.

g. Management will perform a quality control check at the completion of services. The check will verify completion of work, provide feedback to personnel and director on status of the equipment and quality of work performed.

h. Equipment will not be utilized or dispatched if servicing is overdue. Exceptions must be obtained from the maintenance OIC, UMCS Manager or the manager's designated representative.

i. A copy of the last service performed will be kept on file until the next like service has been conducted. Copies of the completed annual inspection check sheets (Appendix P) for the MEP-36A and the MC53 will also be on file.

6. **Unscheduled Repairs**.

a. Unscheduled repairs may result as faults are noted during PMCS.

b. Noted faults will be annotated on a DA Form 5988-E and submitted to the maintenance OIC for: (1) - immediate corrective action, i.e., assignment for diagnosis, tightening, adjustment, repair, replacement, repair part request, or (2) - report equipment NMC.

c. Equipment reported NMC will not be dispatched.

7. **Calibration**.

a. TB 43-180 lists TMDE (Test, Measurement, and Diagnostic Equipment) calibration requirements. All organizations with TMDE will have TB 43-180, TB 750-25 and calibration references on hand or on order.

b. All organizations are required to have a calibration coordinator and an assistant. Management will appoint coordinators by written orders per AR 750-25 and TB 750-25.

c. Calibration listings are printed on the last Friday of each month. Units should pick up their listings on the first working day after printing, or IAW installation policies.

ANNEX A (MAINTENANCE) APPENDIX 5 (DIRECT SUPPORT) TO UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. **Guidelines for Turn-In of Prime Power Equipment**.

a. Requests for support maintenance are submitted to JCWS using DA Form 2407. The equipment record folder, equipment logs and DA Form 2404 (with faults) will also be submitted with the equipment.

b. Equipment will be reasonably clean and all pilferable items removed prior to turn in for support maintenance.

c. Correction of organizational faults will include annotation of parts requisitioned on DA Form 2408-14 and will include the requisition document number.

d. Equipment submitted for repairs will be inspected and verified by UMCS personnel. The DA Form 2404 will be dated the same day as the DA Form 2407.

e. All forms will be submitted to JCWS with the equipment. JCWS will assign a Work Order Number (WON) and fax the request back to UMCS.

2. **Equipment Acceptance Requirements**.

a. DA Form 2407's will be routed through the UMCS Maintenance OIC prior to shipping equipment to JCWS.

b. The UMCS maintenance OIC will ensure/certify that all operator level maintenance has been performed and all faults corrected prior to shipping equipment to JCWS. Exceptions to this policy will be made by the UMCS Manager/Maintenance Officer (MO) or JCWS.

c. Applicable equipment log books and records will accompany equipment.

d. Upon completion of repairs by JCWS, the owning unit will perform an acceptance inspection. JCWS will close out the work order.

3. **Equipment Rejection Guidelines**.

a. Each item of equipment will receive a complete technical inspection (TI) before acceptance by JCWS. All organizational deficiencies found will be referred to the UMCS Manager for immediate correction of maintenance deficiencies. Exceptions to this policy will be made by the UMCS Manager/Maintenance Officer (MO) or JCWS.

b. UMCS personnel will not perform maintenance above their level on the maintenance allocation chart (MAC) unless they have the capability to do so and authorization is given by the UMCS Manager/Maintenance Officer (MO) or JCWS. Tools and repair parts will be furnished by JCWS if authorization is granted.

c. UMCS will be notified to take corrective action when any of the following conditions exist:

(1) Evidence of cannibalization or other than fair wear and tear damage

(2) Equipment is dirty to the extent that an initial inspection cannot be performed.

(3) Equipment has uncorrected faults not yet annotated on DA Form 2408-14.

(4) UMCS fails to provide proper documentation, required forms, etc.

4. **Shop Priorities**.

a. Priority of repair action within JCWS facility is indicated by the organizational issue priority designator code (IPD) assigned by the UMCS.

b Emphasis will be given to expediting repair of equipment belonging to UMCS. Non Mission Capable items will receive 1st priority.

d. JCWS will make every effort to respond immediately giving the UMCS power plant top priority on all repair actions.

5. **Estimated Cost of Damage (ECOD).**

a. The ECOD is a management tool used by management to determine improper maintenance and/or other than fair wear and tear damage to Army equipment. The ECOD may be requested by the Director of Public Works or required by JCWS or the FE Manager if abuse or neglect is suspected. All government equipment is subject to ECOD action.

b. Request for ECOD will be submitted on a DA Form 2407 signed by the Director, DPW.

c. Upon completion of the ECOD, the requester will submit a work order to "repair as per ECOD" accompanied by a release statement from surveying officer, if applicable. If a report of survey is not required, a statement to that effect must be signed by the Director, DPW. Upon receipt of this statement and a job order, JCWS or UMCS will either repair as per ECOD, or classify the equipment for turn-in IAW AR 735-11, AR 750-1 and DA PAM 710-2-1.

d. Equipment, which has been altered, stripped or has the design configuration changed by any means or method, while awaiting repairs by JCWS or, UMCS will be cause for a report of survey or AR 15-6 investigation.

6. **Local Support Maintenance**.

a. UMCS will request maintenance to their respective installation support facility IAW with the respective support facility's SOP.

b. It is incumbent upon UMCS to possess a copy of and be familiar with the supporting facilities' SOP.

c. Specifics for support maintenance should be addressed in respective ISSA's.

ANNEX A (MAINTENANCE) APPENDIX 6 (MAINTENANCE PROFESSIONAL DEVELOPOMENT) TO UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. General

In order to develop the skills necessary to effectively manage all aspects of unit maintenance, commanders and supervisors will keep themselves informed on current policies and procedures. Use of UMCS professional development classes and on post schools is a key to a good maintenance professional development program.

2. UMCS Maintenance Education

a. Classes are an essential tool to educate personnel on maintenance problems, procedures and techniques.

b. Management should develop a program of maintenance oriented exercises to be conducted periodically. This technique allows a 100% check of a given aspect of equipment maintenance. This technique is limited only by the imagination of the manager/supervisor. An example of this technique is: Conduct operational checks of all generators.

3. On-Post Schools

On-post schools are a valuable tool available to all commanders. Use of on-post schools is beneficial to the personnel, as well as to the organization and manager/supervisor, in assuring a high state of maintenance training. An eligibility criterion is normally specified in the respective post military schools catalog, available through DPTM.

ANNEX A (MAINTENANCE) APPENDIX 7 (TOOL CONTROL/TOOL TOOM OPERATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. **Purpose**: To establish procedures for control and use of tools within the unit organizational maintenance element.

2. **References**:

a. AR 190-51 - Security of Army Property at Unit Level.

b. AR 25-400-2 and DA PAM 25-400-2 - Modern Army Record Keeping System (MARKS)

c. DA PAM 710-2-1 - Using Unit Supply System

d. DA Pam 750-35 - Functional Users Guide for Motor Pool Operations.

3. **Responsibilities**:

a. Manager

(1) Sets UMCS tool control policy.

(2) Establishes a tool room with adequate security for UMCS tools.

(3) Assigns responsibility by use of hand receipts. Individual use items, such as mechanic's tool kits are hand, receipted to user.

(4) Responsible for all tools not further hand receipted.

(5) Enforces supply discipline according to Unit Supply Update.

(6) Conducts management inspections.

(7) Insures all authorized tools are on hand or on requisition.

(8) Turns in excess tools.

(9) Conducts inventories and informs management of results.

(10) Takes action to account for tools lost, damaged or destroyed through other than fair wear and tear, before issuing or requisitioning replacement.

(11) Provides overall management for the UMCS tool control program.

(12) Enforces management's policies and implements directives.

(13) Manages the unit's tool control program.

(14) Acts as hand receipt holder for tools issued to tool room.

(15) Appoints primary and alternate tool room attendants, if practicable, for 90-day periods.

(16) Supervises layout and operation of tool room.

(17) Conducts inspections.

(18) Determines status of tools not returned by COB.

(19) Supervises inventories.

(20) Initiates appropriate adjustment document for lost, damaged, or destroyed tools.

(21) Ensures special tools authorized by equipment technical manual and new equipment fielding plans are on hand or on order.

b. Tool Room Attendant

(1) Follow procedures outlined in paragraph 5.

(2) Account for all tools issued to tool room.

(3) Check condition of tools before issue and after return.

(4) Requires tools to be cleaned before return.

(5) Replaces tools in proper place after return.

(6) Cleans and maintains tools in the tool room.

(7) Reports tools not returned by COB to Maintenance Supervisor.

(8) Maintains records and files of tool room actions in accordance with AR 25-400-2 or DA PAM 25-400-2

(9) Attendee will be assigned by the UMCS Manager.

c. Maintenance Personnel

(1) Hand receipts for tools and other individual use items as directed by the UMCS Manager.

(2) Keeps tools secure with lock when not in use.

(3) Stores locked Sets, Kits and Outfits (SKO's) kit in appropriate location.

(4) Conducts inventories as required.

(5) Accounts for all missing, assigned tools.

(6) Cleans and maintains assigned tools.

(7) Signs for or leaves a tool check for all tools drawn from the tool room.

(8) Cleans tools before returning them to the tool room.

4. **Inventories.**

a. Manager checks inventory accuracy during annual inspections.

b. Tool kits and individual use items are inventoried monthly. Maintenance personnel will have sole possession of one lock and key for each toolbox. The second key will be secured by the primary hand receipt holder.

c. Shop equipment sets and other special tools and equipment are inventoried quarterly.

d. Results of all inventories are reported to supply sergeant within three (3) working days.

e. Inventories are mandatory upon change of hand receipt holder.

f. Tool inventories are done before and after major field exercises.

5. **Tool Room Procedures.**

a. Maintenance Management

(1) Maintain a reference library for all shop equipment, SKO's and test equipment.

(2) Ensure tools and test equipment listed in TB 43-180 is on the TMDE listing and is tagged with DA Label 80. NOTE: Items listed in TB 43-180 as "calibration not required" (CNR) must be on the listing and have a DA Label 80, with CNR over stamped, attached to the equipment.

(3) Establish and maintain a preventive maintenance schedule and record, DD Form 314, for all tools and test equipment requiring organizational maintenance.

(4) Establish and maintain a locator card file system to assist in storing, identifying, and inventorying of all tools and test set equipment authorized in the shop sets, to include special purpose equipment technical manuals. File the shop set locator cards in the same sequence as the tools and test equipment is listed in the Supply Catalog (SC). File cards for special tools at the end of the file in alphabetical sequence.

b. General

(1) Hand tools, SKO's and shop equipment will be secured IAW AR 190-51, para 3-7.

(2) Shadow boards are used for frequently issued tools. Boards will be marked alphabetically. Individual tools will be numbered consecutively.

(3) The other tools are stored and secured in locked cabinets or containers. Each cabinet or container will be marked/identified alphabetically and each drawer will be marked numerically.

(4) General mechanic's tool kits are stored on a rack and secured with a chain and padlock, if practicable.

(5) Paints, fuels, thinner and other flammables will not be stored in the tool room.

c. Bolt Cutters

(1) Bolt cutters will be secured under double lock and key.

(2) Only authorized personnel may sign out bolt cutters.

(3) Bolt cutters will be inventoried twice a week and never allowed out over night.

(4) Separate sign-out register will be used.

d. Accounting for tools with "Tool Sign-out Log/Register"

(1) Tools not accounted for with tool checks will be signed for on a DA form 5519-R, Sign Out Log/Register.

(2) Tools not signed in at the end of the workday will be reported to the maintenance supervisor.

e. Accounting for Extended Use. Tools kept out beyond normal tool room hours will be signed out and hand receipted to the individual on DA Form 3161.

f. Turn-in and Replacement of Unserviceable Tools.

(1) All unserviceable tools and test equipment will be turned in to unit supply sergeant on a request for issue and turn-in, DA Form 3161. The hand receipt number, set, kit or outfit number will be annotated on the DA Form 3161 to ensure turn-ins and issues are posted to the proper hand receipts.

(2) Units supply sergeant dates and signs received quantities in supply action block of the issue and turn-in form.

g. DA Form 3161 Disposition

(1) Copy #1 is maintained with the primary hand receipt holder.

(2) Copy #2 is retained by unit supply.

(3) Copy #3 will be used to annotate the document number if the item is not available and returned to the primary hand receipt holder. The document number will be transferred to his/her copy of the hand receipt. Copy #3 can then be destroyed.

h. Replacement of Lost Tools

(1) The preferred method of replacing lost tools is by cash sales, in lieu of report of survey or statement of charges. Individuals replacing authorized organizational hand tools by the cash sales method receive a 10% discount.

i. Access to Tool Room

(1) Access to tool rooms will be limited to tool room attendant, maintenance supervisor or other authorized personnel.

(2) A sign will be posted at the tool room entrance with the words "No Admittance. Tool Room Personnel Only".

TOOL CONTROL CHECKLIST

1. SOP for tool room procedures on hand.

2. Tool and test equipment secure from pilferage. Ref: AR 190-51 and FM 19-30

3. Component hand receipts, DA form 2062, on hand for all special tools and shop sets. Ref: DA Pam 710-2-1

4. Locator file for identifying and locating tools and test equipment established and maintained. REF: FORSCOM supple to AR 710-2 & page F-13

5. Locator cards contain the following information: National Stock Number; noun/nomenclature; quantity authorized; quantity on hand; location; S/N of test equipment and special tools; document number of missing components. REF: FORSCOM Sup 1 to AR 710-2 & page e-12

6. Separate sign-in/out register established for each tool set and special tool kits. REF: DA Pam 710-2-1

7. DD Form 314 established on required equipment.

8. Calibration current on required equipment.

9. Tools and test equipment serviceable, clean and rust free.

10 Unserviceable tools turned in and replacements ordered.

11. Tool and test equipment publications on hand.

12. Oil can and grease gun contents marked.

13. Tool room free of trash, oily rags and flammable liquids.

ANNEX B (MAINTENANCE) APPENDIX 1 (SAFETY) TO THE UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. **References**.

a. Code of Federal Regulation 29 CFR 1910

b. AR 385-10, The Army Safety Program.

c. AR 385-30, Safety Color Code Markings and Signs.

d. AR 385-40, Accident reporting and records.

e. AR 385-55, Prevention of motor vehicle accidents.

f. EM 385-1-1, Safety and health requirements manual.

g. FM 29-2, Organizational maintenance procedures

h. TM 9-237, Welding theory and application.

i. TM 9-243, Use and care of hand and measuring tools.

j. TM 9-2610-200-24, Care, maintenance, and repair of pneumatic tires and inner tubes.

k. TB 43-0142, Safety inspection and testing of lifting devices.

2. **General**.

An effective safety program is essential to good maintenance. Personnel should understand the importance of ensuring and working in a safe environment. The entire chain of command must develop safety consciousness and strictly enforce safety requirements.

3. **Purpose**.

This chapter is designed to give the user the minimum standard for maintenance operations from a safety standpoint. The establishment of additional safety criteria is strongly encouraged.

4. **Training and Supervision**.

a. The organizational safety SOP will cover common maintenance hazards and take into consideration all conditions peculiar to the specific operation of the UMCS.

b. Management will assign inexperienced maintenance personnel to work with experienced senior maintenance personnel for on the job training and skill verification or certification.

c. Personnel will be briefed as to their individual responsibilities pertaining to safety instructions and use all safeguards regarding the use of tools, machinery, equipment and processes.

d. Personnel will be certified as proficient in the technical aspect of their duties. This certification will be reflected on individual **DA Form 348E** and **OF 346E**.

e. Updated maintenance and equipment publications will be available and accessible to equipment operators, and leaders.

f. Safety inspections will be conducted by the organization safety officer, UMCS manager and UMCS personnel. Managers' area walk-thru can be considered a safety inspection.

g. Manager's will conduct monthly safety meetings in the work area and maintain a record of safety issues covered and personnel in attendance.

h. Personnel will be cross-trained to operate generators and other required equipment. Training will be reflected on individual **DA Form 348E's** and **OF 346E's**.

i. Manager's will ensure personnel follow established safety rules and procedures, correct or report unsafe conditions, report all accidents, warn others of hazards and use personal protective equipment (**earplugs/earmuffs, safety glasses, safety shoes, gloves etc.**) when required.

j. FM 43-5, Unit Maintenance Operations, will be used to provide additional guidance regarding training and supervision.

5. **Safety Inspections**.

UMCS Safety Officer will inspect the various maintenance areas using this SOP as a basis for determining full compliance with safety while performing assigned missions.

6. **Fire Protection**.

a. Smoking will be allowed in specifically designated outside areas and marked accordingly (**DESIGNATED SMOKING AREA**). These areas will be designated IAW DOD, host installation and organizational policies.

b. Ensure proper use and storage of flammable materials. Store paint, POL products and cleaning solutions in designated areas and authorized containers. Flammable and combustibles are prohibited from being stored together.

c. A **HAZARDOUS MATERIALS** designated area will be located in the power plant compound area at least 50 feet from equipment, buildings or flammable storage. The area will have a non-spill, dam floor, walls made of wire fencing, and roofed to protect contents from the elements and excessive heat. A hazardous materials spill plan is required. All personnel assigned to UMCS will be knowledgeable of the plan and the actions to take when a spill occurs. A sufficient amount of dry sweep will be kept at the site for immediate use. The area should be kept locked with the key readily available in case of emergency. A fully charged chemical fire extinguisher must be kept at the site. An emergency notification card will be on the door of the facility listing the names and phone numbers to be called the number of the fire department and the building number of the closest building to the site.

d. Vehicles will not block any building exit nor designated fire lane.

7. **Grounding Procedures**.

a. Grounding of fuel-carriers when stopped for dispensing of fuel, maintenance or parked in the power plant area is mandatory. All fuels are highly dangerous unless they have been completely purged. In order for a vehicle of this type to be completely grounded, it must have its' grounding wire/clamp fastened to the end of the rod which is imbedded straight down in the earth for at least 3 feet. Generators will be grounded IAW procedures outlined in the appropriate technical manual. "No smoking within 50 feet" signs will be posted 50 feet away on all four sides of a truck or generator fuel source.

b. When in the power plant area or in the field, a drip pan for the fuel nozzle and a large class B/C fire extinguisher will be kept next to the fuel nozzle site. Only POL licensed personnel are authorized to dispense fuel. (NOTE: Having the driver of the vehicle put the fuel in the vehicle is contrary to AR 600-55, Motor Vehicle Driver and equipment Operator Selection, Training, Testing and Licensing.) Protective goggles and rubber gloves are required to be worn when dispensing fuel. Note: Never ground fuel trucks or generators to power plant area fences. Fences are not properly constructed to serve as grounding devices.

8. **Ground Guide Procedures**.

a. All vehicles, 2-1/2 ton or larger, will have a ground guide when backing or when view is obstructed.

b. A ground guide never walks backward while guiding a vehicle.

c. If more than one ground guide is utilized; only one guide will give the vehicle/equipment operator directions.

ANNEX B (MAINTENANCE) APPENDIX 1 (SAFETY) TO THE UTILITY MONITORING AND CONTROL SYSTEM (UMCS) SOP

1. **Personal Protective Equipment**.

a. Personnel will wear safety shoes at all times during duty hours and for ALL required repairs during non-duty hours. When footwear is not worn, they will be stored in employee's lockers. Protective footwear shall comply with American National Standards Institute (ANSI) Z41-1991. Repair and maintenance of footwear is the responsibility of the employee. Management will inspect employee footwear for compliance and before replacement footwear is purchased. For details on price and type of authorized footwear, contact UMCS Manager.

b. Personnel will wear eye protection during cutting, soldering, chipping, grinding, and while using toxic chemicals. When servicing lead-acid storage batteries at the generator site, personnel will wear, along with safety impact and/or chemical splash goggles, a face full shield to provide maximum protection from splash back, solvent resistant rubber or neoprene gloves to protect hands from contact with chemicals and an acid apron to protect clothing from any chemical damage.

c. Personnel will wear helmets during material handling, electrical repair or any activity involving possible head injury.

d. Hearing protection earmuffs with radio or earmuffs with earplugs, whichever applies, will be worn at all times when operating generators, grinders, and drills or working in noise hazard areas.

e. Hot Surface or Electrical Shock Gloves will be worn during all electrical repairs, maintenance and operations where the hazard of burns or shock exists.

2. **Steam Cleaning**.

a. Protective clothing will be worn during steam cleaning and will include rubber or leather gloves, face shield and coveralls.

b. Steam cleaning will be permitted in areas/facilities specifically designated for such action. Environmental considerations will apply. Operations must conform to local regulations.

3. The supervisor is responsible for ensuring personnel protective clothing and equipment required is present and being used.

13. Safety Annexes.

The safety annexes in this chapter are designed for use in the various maintenance sections. Copies of applicable annexes will be displayed in the appropriate shop sections.

ANNEX B (MAINTENANCE) APPENDIX 2 (PERSONAL PROTECTIVE EQUIPMENT) TO THE UTILITIES MONITOR AND CONTROL SYSTEMS (UMCS) SOP

1. The employer will provide personal Protective Equipment (PPE). All UMCS personnel will receive training on PPE and will comply with this SOP and all regulations governing the use and maintenance thereof.

2. During all operations and during normal duty hours, personnel will wear appropriate PPE. Under no circumstances outside of work or during an emergency, will personnel wear PPE. Personnel found violating these guidelines will receive corrective action. Management will determine that action.

3. PPE will be present at both the generator site and Bldg. 14600. Also, all necessary PPE will be maintained on the UMCS vehicle. Personnel will secure their individual PPE in their individual lockers located at Bldg. 14600.

4.

ANNEX B (MAINTENANCE) APPENDIX 3 (HAND AND POWER TOOLS) TO THE UTILITIES MONITOR AND CONTROL SYSTEMS (UMCS) SOP

1. Reference TM 9-243, Use and Care of Hand Tools and Measuring Tools.

2. Supervisors will conduct regular safety meetings on the proper use and care of hand and power tools.

3. Personnel will use the right tools for the job and inspect the tool for safe conditions before using it.

4. NEVER accept damaged tools from the tool room or use damaged tools.

5. NEVER place tools where they will fall into machinery or electrical apparatuses.

6. Personnel will only operate those power tools which they have been trained and authorized to use. ALL equipment requiring training will be reflected on individual DA form 348.

7. Working areas will have adequate light and be free of oil slicks, water on the floor and tripping hazards.

8. Personnel will ensure that tools are in the off position before connecting the tool to a power source.

9. Electrical hand tools cannot have any exposed wiring. Any broken or cut portions of the cord insulation must be immediately repaired or the cord replaced.

10. All hand tool electrical cords must have the three prong-grounding plugs. If the grounding prong is missing and the plug has only two prongs, it is unserviceable and must be turned in for repair. There are some exceptions to this. They will be judged on an individual basis.

11. Power tools will be unplugged before cleaning.

ANNEX B (MAINTENANCE) APPENDIX 4 (SAFE CLEARANCE – LOCKOUT/TAGOUT) TO THE UTILITIES MONITOR AND CONTROL SYSTEMS (UMCS) SOP

1. The purpose of these procedures is to provide guidance to and safeguard all personnel whose research, testing, operating, or maintenance duties require them to work on or in proximity to equipment in which the unexpected energizing, start-up, or release of stored energy could cause personal injury or property damage.

2. These guidelines are applicable to all Utility Monitor and Control Systems (UMCS), personnel. Due to the severe consequences if these procedures are not followed, any employee who fails to follow these procedures will face disciplinary action.

3. Before performing service or maintenance on equipment in which the unexpected energizing, start-up, or release of stored energy could occur and cause personal injury, property damage, loss of content, protection, capacity, or energy, the equipment shall have its energy sources controlled in accordance with the procedures in this SOP, industry standards and personal professional experience. In such circumstances, personnel and resources shall not be considered protected until hazardous energy control procedures have been implemented.

a. Each Generator Control Van shall have on hand a copy of these written hazardous energy control procedures.

b. Personnel shall not be permitted to work on any equipment subject to hazardous energy control procedures until all necessary procedures and special instructions have been completed. Those procedures and instructions includes, but are not limited to –

(1) A statement of the intended use of the procedure;

(2) Procedural steps for shutting down, isolating, blocking and securing systems to control hazardous energy;

(3) Procedural steps and responsibilities for the placement, removal, and transfer of lockout and tagout devices;

(4) Procedural steps for placing and tagging, and moving or removing and untagging, protective grounds;

(5) Requirements for testing the system to verify the effectiveness of isolation; and

(6) The means to achieve compliance with the procedures.

4. Devices which are capable of being locked out shall utilize locking devices to control hazardous energy unless it can be demonstrated that:

a. The use of tagout devices will provide full personnel protection as defined in this SOP. **(SEE Appendix A.)**

b. The use of locking devices would entail burdens that exceed any advantage to the use of lockout over the use of tagout devices. (All affected personnel shall be informed As Soon As Possible (ASAP) by verbal communications during shift changes, annotations in operators log located at Bldg. 14600 and the Generator Log Book, located at the Power Plant Site, in addition to email), that tagout is being used in lieu of lockout.

NOTE: Any safe clearance point which may be accessible to the public or other unauthorized individuals shall, in addition to tagging, be locked or otherwise secured to prevent unauthorized operation. This includes locking and tagging the gates to the plant yard. Ensure that lock **AAA6** is applied to the plant yard gate.

5. If an energy-isolating device is not capable of being locked out, the hazardous energy control procedures shall utilize tagout as indicated in para.4. When a tagout device is used in lieu of a lockout device, the operating individual shall document and substantiate compliance to the UMCS Manager, with the following, prior to using tagout in lieu of lockout, as indicated in para.4.

a. All tagout requirements of this SOP and the hazardous energy control procedures shall be met.

b. The tagout device shall be attached to the same location if possible, that the lockout device would have been attached; if this is not possible, then the tag shall be attached as close as safely possible to the device and in a position that will be immediately obvious to anyone attempting to operate the device.

c. Additional means (e.g., placement of the tag in a manner which inhibits operation of the energy isolating device, removal of an isolating circuit mechanism, blocking of a control switch, opening of an extra disconnecting device, removal of a valve handle to reduce the likelihood of inadvertent energizing, etc.), shall be employed to provide a level of protection equivalent to that provided by a lockout device.

6. Whenever replacement, major repair, renovation, or modification of machinery, equipment, or transmission line (electrical, mechanical, hydraulic, pneumatic, etc.) is performed or new machinery, equipment, or transmission line is installed, energy isolating devices designed to accept a lockout device shall be installed.

7. At the option of the UMCS Manager, equipment may be operated or removed from service without a safe clearance. If the UMCS Manager exercises this option he/she shall prepare a list of all equipment which may be operated, taken out of service, or inspected without a safe clearance. The UMCS Manager shall include appropriate measures in the hazardous energy control program to provide adequate protection for personnel involved. This option is only permitted when the operation or work to be accomplished shall be limited to one shift and the operator shall remain with the equipment at all times when it is operated or removed without a safe clearance. In addition, the equipment so designated must be:

a. Of a type that exposure to unexpected energizing or start-up of equipment is controlled by a device, under the exclusive control of the employee performing the work.

b. Easily isolated such that the authorized individual can exercise close control over the isolation points.

c. Other than in the main stream so as to affect facility mission.

8. Affected and authorized individuals shall report circumstances that does not meet the requirements of these guidelines to the UMCS Manager. The operator shall have the authority to suspend maintenance/repair operations until the requirements are met.

9. **UMCS MANAGER: (Responsible Authority)**

a. Overall responsible for the hazardous energy control procedures.

b. The manager will ensure that all operators are trained on all hazardous energy control procedures.

c. Ensure that preparations, procedures and instructions for clearance of each piece of equipment or combinations of equipment which require operation or clearance as a unit are adhered to.

d. Prepare a list of equipment, which may be removed from or returned to service without a clearance procedure.

e. Will have jurisdiction over areas or equipment to be placed under safe clearance procedures and work to be performed.

f. Will be responsible for making any necessary arrangements for interruption of service.

g. Must review and approve clearances and be informed at all times as to the status of work covered by clearance.

h. Will review requests for safe clearance to verify that proposed hazardous energy control procedures meet regulation and are adequate for the work to be performed. Approves the Safe Clearance Request (ENG Form 1927-R) (**See Appendix B**);

i. Assure that appropriate action is taken subsequent to violations of hazardous energy control procedures.

10. **UMCS OPERATORS: (Authorized Individual)**

a. Make request for safe clearance using (ENG Form 1927-R) becoming fully responsible for equipment cleared until clearance is released or work being performed is complete.

b. Will be responsible for placing of barriers, such as padlocks, blocks or similar devices to prevent operation of equipment and injury to personnel or damage to equipment.

c. Will be responsible for placement of protective grounds with identification where required or deemed necessary for protection of personnel and equipment. (**SEE para.13, d**).

d. Make proper entries in ENG Logbook (ENG Form 2198).

e. Keep list of all active Clearances.

f. Responsible for placement of all Clearance Cards (Main and Auxiliary), ensuring they and all isolation devices are listed on the Safe Clearance Form accordingly.

g. All UMCS Operators are responsible to act in the best interest of the government, UMCS Operations, personnel safety, and equipment.

11. EQUIPMENT REQUIRING A CLEARANCE:

a. Equipment upon which work to be performed will be covered by a clearance if authorized removal or return to service could result in injury, damage or loss of protection. (**See Appendix C** for Equipment List).

12. CLEARANCE ON TIE LINES AND SUPPLY LINES FROM OUTSIDE UTILITIES:

a. Clearance on tie lines and supply lines from outside utilities or power marketing agency will be handled between the Energy Manager, the UMCS Manager or designated representative and dispatching organization of utility, marketing agency, or system load dispatcher.

13. CLEARING EQUIPMENT:

a. At the generator site, operator will be responsible for the clearing and tagging of all equipment under their jurisdiction, which may be necessary for safe performance of work. Operators will recheck clearing and tagging of equipment once in place, as an extra precaution.

b. At automatic or remote control stations, operator is responsible for proper clearing and tagging of equipment necessary for accomplishment of work and for protection of personnel and equipment. UMCS Manager will be notified at start and completion of operation. Where no communication is available, prior approval of proposed schedule of clearing operations is required and at first opportunity after completion of operation. UMCS Manager will be advised of actual time of commencement and completion of clearance either verbally in person or telephonically via answering machine, and additionally by email.

c. Clearance instructions which are a part of standing operating procedures or which may be issued by the UMCS Manager, must be followed in exact order as given in clearing of equipment.

d. Placing of special temporary protective grounds on cleared equipment or circuits and their removal will be used as necessary in accordance with grounding requirements and procedures. Care will be taken so that placing of grounds will not adversely affect related equipment.

14. OPERATION OF EQUIPMENT DURING CLEARANCE:

a. Operation of any equipment under a clearance on which maintenance is being performed or which has a Cautions Order tag will be subject to orders from the UMCS Manager or operator performing work.

b. At the generator site, all operations of equipment shall be carried out by the operator performing work, unless permission is expressly granted to others to perform individual operations.

c. Operation of equipment directly under control of an operator will be performed only by that operator.

15. RELEASE OF A CLEARANCE:

a. Clearance must be promptly released by the operator conducting work upon completion of work for which clearance was issued.

b. All instructions for release of clearance will be repeated and clearly understood prior to any action taken. That is, all points where locks and tags are placed will be verbally communicated as to their removal procedures prior to removal.

c. If necessary to transfer responsibility for a clearance, the person releasing responsibility will advise the person assuming responsibility of work already performed. They will then ensure the transfer is annotated in the Clearance LogBook and that contact with the UMCS Manager is made immediately in person. If contact can not be made immediately with the UMCS Manager, it must be made as soon as possible, but no later than the following day.

NOTE: Due to the nature of UMCS's mission and the number of personnel, this transference of responsibility is authorized by the UMCS Manager, (IAW ER 385-1-31 para. 6., a., 4). However, communications with the UMCS Manager **MUST** be made as indicated in above procedure.

d. When the person with the clearance MUST leave the job prior to its completion and it is impossible to follow the procedure outlined above without seriously delaying restoration of service, that person leaving will report to the UMCS Manager prior to leaving, and sign a statement specifying equipment that is being worked on and names of all oncoming persons who are to report in the clear prior to placing equipment in service. Final clearance responsibility will rest on UMCS Manager or designated representative/operator. Refer to para.13, b, for reporting instructions.

e. If, due to death or serious illness, it is impossible for the person who obtained the clearance to effect its release, the UMCS Manager or a designated representative/operator must assume full responsibility of the released/transferred clearance by one of the following methods:

1. A signed statement, *if possible*, from the operator with the clearance to the designated representative, to the effect that the equipment has been checked and found ready for service and can be placed in service without danger to personnel or equipment.

2. If signing a statement proves to be time consuming due to the nature of the illness or emergency, the operator will conduct a visual walk-thru inspection with the designated representative assuming responsibility on all cleared points of the equipment and work completed to verify that equipment is ready for service.

3. Upon satisfactorily inspecting the equipment, the designated representative will then sign the statement indicated above assuming full responsibility of the clearance. The designated representative may then clear the equipment and place it back in service. The signed statement will be turned in to the UMCS Manager for filing.

4. In case of radio or telephonic release, by satisfactorily identifying himself/herself to the UMCS Manager, verification is preferably accomplished by means of a third and if possible, fourth party. He/She must give assurance that above conditions are met.

16. CLEARANCE RECORDS:

a. Each clearance will have an assigned number preceded by the number of the equipment being worked on. This number will be used for identification when issuing or releasing clearance and to ensure the consolation of all records pertaining to each clearance. Clearances will be numbered consecutively.

Example:

(1-1 0273 0001)

Generator Number Julian Date Clearance Number (1-1-0273-0001)

(1-0 0273 0001)

Control Van Number Julian Date Clearance Number (1-0-0273-0001)

e. All clearances will be entered into a logbook when issued and released utilizing red ink to call attention to clearance entries. On all multipurpose sites with power, **ENG Form 2198 (GENERATOR STATION OPERATION LOG)** will be used for recording all clearances. Detailed information covering items and tags to be provided will be entered on ENG Form 1927 as prescribed below.

Logbook entries will contain the following data for issuing:

(1) Clearance Number.

(2) Purpose. **Example (Unit 1-1 Replace Transfer Pump)**

(3) Time: Hour and Minute, AM or PM.

(4) Date: Day of month, Month, Year.

(5) Issued to:

(6) Authorized by:

For releasing clearances the following data will be logged.

(1) Clearance Number.

(2) Issue Date.

(3) Time: Hour and Minute, AM or PM.

(4) Date: Day of month, Month, Year.

(5) Released by:

f. Upon releasing a clearance, the word **RELEASED** will be written or stamped across corresponding log entries of clearance issued. Shift operator or other responsible person at the beginning of shift will log (in red ink), number of each outstanding clearance or equipment under his/her jurisdiction.

17. **TAGS**

a. **Request for clearances, clearance releases** and other pertinent data in connection with clearances will be entered on ENG Form 1927. One or more forms, as necessary, will be used for each clearance. Forms will be supplementary to generator log and maintained as a record.

b. **Cautions Orders** are issued to direct attention to an abnormal, hazardous, or unusual condition or to special operating instructions. Caution Orders must be issued at any time personnel or equipment may be endangered by operation of automatic controls or operation of equipment adjacent to that being worked on. Caution Orders will not be issued for Hot-Line work on circuits while relay tests are being conducted or when circuit breakers that can deenergize circuits being worked on when associated control relays are out of service.

(1). Each Caution Order will have an assigned number, using an "X" as a prefix. Caution Orders will be numbered consecutively.

Example: (X-1, X-2, X-3...etc.)

(2). Issue and Release of Caution Orders will be issued in accordance with procedures outlined for issue and release of clearances.

(3). Caution Orders will be logged in accordance with procedures outlined for clearances, except that black or blue ink will be used instead of red ink. The data entered for issue and release will conform to data required for clearances.

(4). A Caution Order sheet, ENG Form 1928, will be prepared for each Caution Order issued. This will supplement site log entry at those sites maintaining logbooks and provide necessary site records at those sites.

c. **Caution Tags (YELLOW)**, ENG Form 1924, will be properly completed and attached to appropriate control devices and equipment.

d. **Danger Tags (RED)**,ENG Form 1925, DANGER – Do Not Operate properly completed, must be attached to all main and subordinate controls associated and related to equipment to be cleared. Attachment of red tag indicates that equipment has been removed from service under indicated clearance. All necessary control operations will be completed before attaching red tags. When weather or other conditions might damage or disfigure cardboard tags, tags will be incased in suitable clear plastic weatherproof envelopes for protection.

e. Danger and Caution signs will be properly placed at work sites to warn personnel and the public of hazardous conditions. Signs will be typed, size, and color required by American National Standards Institute on Code No. Z35.1, Industrial Signs. Engineer Forms 1924, 1925, 1927 and 1928 will be issued for safe clearance procedures.

18. APPLYING AND REMOVING LOCKOUT AND TAGOUT DEVICES

a. The authorized employee/operator shall ensure that all energy isolating devices needed to control energy to, or within, the system are identified and that system is properly shut down, isolated, blocked, and secured in accordance with the hazardous energy control procedure. The authorized employee/operator will also ensure that affected employees are notified that the equipment is about to be shutdown and locked or tagged out.

b. Any system operated by a remotely controlled source will be completely isolated such that it cannot be operated by that or any other source.

c. The authorized employee/operator shall affix lockout and/or tagout devices to each energy-isolating device in accordance with the hazardous energy control procedure.

(1) Lockout devices shall be affixed to each energy isolating device in a manner that will maintain the energy isolating device in the safe position.

d. Tagout devices shall be affixed in such a manner as will clearly indicate that the operation of movement of energy isolating devices from the safe position is prohibited.

e. In areas not under strict control of personnel involved with the hazardous energy control activities, and in areas with public access, padlocks or other positive controls must be installed on the isolation devices along with the appropriate tags.

f. In areas under strict control of personnel involved with hazardous energy control activities, and in areas that prohibit public access, padlocks or other positive controls are not required. In such cases tagouts may be used as a precaution to the operator. (See para.4.a, b).

g. At the generator site, locked gates prohibit access to the public. If inside a unit or control van, place a tag outside to identify to others that work is being conducted and area is considered hazardous. Communication is to be performed to all affected personnel and staff prior to commencement of work.

h. Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, discharged, or otherwise rendered safe.

(1) Protective grounds shall be identified with safe clearance/Danger Red Tag.

(2) The authorized employee/operator is responsible for ensuring the control of residual energy and for placing and tagging and requirements specified in the hazardous energy control procedures.

i. When there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the energy control procedure is complete, and hazard ceases to exist.

j. Before starting work on systems which have been locked out or tagged out, the authorized employee/operator shall verify that isolation and deenergization of the system have successfully been accomplished.

k. When tagout devices are used, employees/operators shall be instructed in the following requirements and limitations of tags.

(1) Tags must be updated, legible and understood by all authorized and affected employees and incidental personnel.

(2) Tags and their means of attachment must be made of materials which will withstand the environments encountered in the workplace.

(3) Tags shall be securely attached to energy isolating devices so that they cannot become inadvertently or accidentally detached during use.

(4) Tags shall not be removed without authorization of the authorized employee/operator and shall never be bypassed, ignored, or otherwise defeated.

(5) Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical protection that is provided by a lock; tags may evoke a false sense of security.

l. Before lockout or tagout devices are removed and energy restored to the system, the authorized employee/operator shall ensure that the following actions have been taken:

(1) The work area has been inspected and all nonessential items(e.g., tools and materials) have been removed from the system, the system components are operationally intact, and all employees have been safely positioned or removed from the area and;

(2) All affected employees have been notified that the lockout or tagout devices are about to be removed.

m. With the exception of the following conditions, each lockout and/or tagout device shall be removed from each energy-isolating device by the authorized employee/operator who applied the device. When this employee is not available, the device(s) may be removed by another individual appointed by and under the direction of, the UMCS Manager provided that the following procedures are complied with:

(1) The UMCS Manager ensures that the individual appointed to remove lockout and/or tagout devices is knowledgeable of the scope and procedures of the safe clearance, work already performed, and works to be performed.

(2) This individual and the requirements for transferring removal authority to him/her from the authorized individual/UMCS Manager is listed in this SOP. (**Paragraph 15 and Appendix C.**)

(3) Verification by the UMCS Manager that the authorized employee/operator who applied the device is not at the facility;

(4) The UMCS Manager makes all reasonable efforts to contact the first authorized employee/operator to inform him/her that his/her lockout and/or tagout devices are to be removed;

(5) The UMCS Manager transfers the clearance and release responsibility to the designated individual.

(6) The designated individual removes the lockout/tagout devices.

(7) The first authorized employee/operator is informed that his/her lockout and/or tagout devices have been removed before he/she resumes work at the facility.

19. GROUP LOCKOUT AND TAGOUT

a. When servicing or maintenance is performed by a crew, (two or more operators), or other group of personnel, they shall utilize a procedure which affords them a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout and tagout shall be conducted in accordance with the procedures required by paragraph 3b; 20 and 21, and include the following requirements:

b. Each person working under the group safe clearance shall sign the master tag or work permit verifying he/she fully comprehends the details of the job, the energy isolation devices actuated, and the lockout or tagout devices installed.

c. Primary responsibility for a set number of personnel working under the protection of a group lockout or tagout device, and for the device itself shall be vested in a principal authorized individual. The principal authorized individual shall ascertain the exposure status of individual group members with regard to the lockout or tagout of the system. Exposure status of each group member shall be monitored by having each person sign in; recording date, time, and initials on a master tag or work permit at the start of a job, and sign out when leaving the job. Changes to any energy-isolating device, including temporary removal of a lock or tag, shall not be permitted until each individual group member has been notified and is clear of any possible danger resulting from the change.

d. Each principal authorized individual shall affix a lock on each lockable energy isolation device. Each principal authorized individual shall place the key or keys into a group lockbox, or comparable apparatus, secure the lockbox with a personal lock prior to beginning work and remove these devices promptly upon completion of his/her portion of the work. Energy isolation devices that are not capable of being locked shall have a tag placed on the device identifying each principal authorized individual.

e. As an alternative to the group lockout and tagout method described above, each individual working on the equipment shall place a personal lock on a group lockbox and a personal tag on each energy isolation device required to provide protection during the specific work being performed.

20. **LOCKOUT**

The following are LockOut/TagOut procedures particular to the Fort Gordon Generator Site. All clearances must be issued prior to locking/tagging and commencement of work.

> **NOTE:** Shutdown equipment using procedures established by the equipment manufacturer. An orderly shutdown must be utilized to avoid any additional or increased hazard to employee/operator.

(a). When work is to be performed on a unit, i.e. repair or change a pump, switch, gauge or filter, the "Shore Power" switch will be moved to the "open" or "off" position.

(b). The operator performing the work will then apply both a Lock and Red Tag with appropriate information as outlined in this SOP, on the isolating device ensuring it is locked out in the "open" or "off" position.

(c). The operator will then remove the battery cables from the batteries to prevent any accidental energization of equipment. Operator will ensure that the (NEG) – cable is removed first, then the (POS) + cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed ONLY when removing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(d). Operator will then verify that the gates to the generator site are locked using lock **AAA6** and display appropriate tags (Red Tag) to identify to others that work is being conducted and area is considered hazardous.

(e). Operator will then ensure that all fuel hand valves to unit are placed in the "closed" position.

(f). Operator will then verify that the equipment is locked out by testing the equipment's operating controls. **RETURN ALL CONTROLS TO THE "OFF" POSITION AFTER TESTING!**

(g). Operator will then notify the UMCS Manager of commencement of work as indicated in para.13, b, and then perform required work.

(h). Upon completion of work, operator must adhere to the following **LOCK REMOVAL** procedures.

NOTE: Operator will check the equipment to ensure it is operationally intact, tools have been removed, and all necessary guards and safety devices have been replaced.

(1). Operator will ensure all affected employees are safely positioned.

(2). The operator will then replace the battery cables on the battery terminals. Operator will ensure that the (POS) + cable is replaced first, then the (NEG) – cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed <u>ONLY</u> when replacing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(3). Operator will then ensure that all fuel hand valves to unit are placed in the "open" position.

(4). Operator will notify affected employees that lock and tags are about to be removed and the equipment is ready for operation.

(5). The operator performing the work will then remove both the Lock and Red Tag from the "Shore Power" isolating device and place it in the "closed" or "on" position.

(6). Operator will then operate unit and perform function tests.

(7). Operator will then remove locks and tags from gates to the generator site to identify to others that work is completed and area is cleared from hazards.

(8). Operator will then notify the UMCS Manager of completion of work as indicated in para.13, b.

21. **TAGOUT**

TagOut procedures will be used in lieu of LockOut when work is to be conducted inside the Relay Room of the Control Van. This is due to the fact that the devices in the relay room are not designed to accommodate locks. Tags will be applied to switches and breaker handles to "warn/inform" personnel of work being conducted. The van will be "tagged" on the exterior door handle. This will require anyone entering the van to knock first, thus providing the operator with an audible warning that someone is about to enter the work area. Locks will be applied to those areas designed to receive such devices. The procedures are as follows:

NOTE: Shutdown equipment using procedures established for equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard to employee/operator.

a. **SHORE POWER**

(1). The operator will ensure that the "Shore Power" switch is moved to the "open" or "off" position.

(2). The operator will then apply both a Lock and Red Tag with appropriate information as outlined in this SOP, on the isolating device ensuring it is locked out in the "open" or "off" position.

b. **LOAD TIEBREAKER**

(1). The operator will then "rack out" the Load TieBreaker connected to the control van, placing it in the complete "disconnect" position.

(2). The operator will then apply both a Lock and Red Tag to the breaker cabinet door with appropriate information as outlined in this SOP, ensuring the isolating device is locked out in the "open" or "off" position.

(3). The operators will then TagOut the "DC knife switch" located in the van with a "Red Tag" to the generator start circuit to prevent the use of the switch and to remind himself/herself of that potential hazard.

(4). The operator will then remove the battery cables from the batteries to prevent any accidental energization of relays or equipment. Operator will ensure that the (NEG) – cable is removed first, then the (POS) + cable. This procedure will provide greater protection of personnel from accidental energization or shock. (**This work is performed <u>ONLY</u> when removing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!**)

(5). Operator will then verify that the gates to the generator site are locked and display appropriate tags (Red Tag) and information to identify to others that work is being conducted and area is considered hazardous.

(6). Operator will then verify that the equipment is locked out, where applicable by testing the equipment operating controls. **RETURN ALL CONTROLS TO THE "OFF" POSITION AFTER TESTING!**

(7). Operator will then notify the UMCS Manager of commencement of work as indicated in para.13, b.

(8). Upon completion of work, operator will adhere to the following **TAG REMOVAL** procedures:

NOTE: Operator will check the equipment to ensure it is operationally intact, tools have been removed, and all necessary guards and safety devices have been replaced.

(a). Operator will ensure all affected employees are safely positioned.

(b). The operator will then replace the battery cables on the battery terminals. Operator will ensure that the (POS) + cable is replaced first, then the (NEG) – cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed ONLY when replacing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(c). Operator will notify affected employees that lock and tags are about to be removed and the equipment is ready for operation.

(d). The operator will then remove both the Locks and Tags from the Load TieBreaker connected to the control van, and return it back into the "connected" position.

(e). The operator performing the work will then remove both the Lock and Red Tag from the "Shore Power" isolating device and place it in the "closed" or "on" position.

(f). The operator will then remove the Red Tag from the "DC knife switch" to the generator start circuit to place it back in an operable state.

(g). Operator will then operate unit and perform function tests.

(h). Operator will then remove locks and tags from gates to the generator site to identify to others that work is completed and area is cleared from hazards.

(i). Operator will then notify the UMCS Manager of completion of work as indicated in para.13, b.

22. TRAINING

a. Training shall be provided to ensure that the purpose and procedures of the energy control program are understood by all personnel and that personnel possess the knowledge and skills required for the safe application, usage, and removal of energy controls. All employees involved with hazardous energy control procedures shall have initial training and must demonstrate adequate working knowledge of hazardous energy control policy and local programs and procedures prior to placement on the list of issuing and authorized individuals. All training shall be documented with the documentation maintained at the site for at least three years.

(1) Each authorized individual and issuing official shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods and means for energy isolation and control.

(2) Each affected person shall be instructed in the purpose and use of the energy control procedures.

(3) All incidental personnel shall be instructed about the procedures and about prohibitions relating to restarting or re-energizing systems which are locked or tagged out.

b. When tagout systems are used, personnel shall also be trained in the limitations of tags (see paragraph 18k)).

c. All personnel shall be retrained in hazardous energy control procedures. Retraining shall be provided -

(1) for all authorized and affected individuals and issuing officials whenever there is a change in their job assignments, a change in systems or processes that present a new energy control hazard, or a change in energy control procedures;

(2) whenever a periodic inspection reveals, or there is reason to suspect the presence of, deviations from or inadequacies in the person's knowledge or use of energy control procedures; and

(3) at least annually.

d. The responsible official shall certify and document all training and retraining. Certification shall contain such information as the name of the person, the time, date, and location of training, the name of the trainer, etc.

23. INSPECTIONS AND REVIEW

Periodic, unscheduled (at least annual) inspections shall be conducted to ensure that all requirements of the hazardous energy control procedures are being followed. The responsible official shall certify that the periodic inspections have been performed: the certification shall specify the system on which the energy control procedures were utilized when inspected, the date of the inspections, the names of personnel performing and included in the inspections.

a. Periodic inspections of hazardous energy control procedures shall be conducted by authorized individuals other than those utilizing the specific energy control procedure being inspected.

b. Periodic inspections of hazardous energy control procedures shall include a review between the inspector and each individual involved in the safe clearance being inspected to assess that person's knowledge of, and responsibilities under, the hazardous energy control program and procedures. This review shall include the limitations of tagout devices (see paragraph 18K).

c. Any deficiencies shall be documented and appropriate measures implemented to correct the deficiencies and to ensure future compliance.

d. Documentation (signed by the inspectors) of the inspections shall be maintained at the facility. These inspections shall strive for consistency in format and content between facilities and shall help assure that the policies and procedures meet all requirements.

e. Annual review of hazardous energy control programs shall be conducted by the installation safety and occupational health office in conjunction with the responsible functional element (e.g., Utility Monitor and Controls System Manager; Appointed Individual).

APPENDIX A

DEFINITIONS

Affected employee: a person whose position requires him to operate or use a system which is under lockout or tagout or whose position requires him to work in an area where a system which is under lockout or tagout is being serviced or maintained.

Authorized employee: a qualified person who is designated, in writing by the designated authority, to request, receive, implement and remove energy control procedures.

Auxiliary Hold Card: Flip side of main hold card and are number 2 and on consecutively.

Clearance: Operating arrangement whereby an authorized person acting individually or as a representative of a crew, may have designated equipment removed from and held out of service by lockout or tagout until released by authorized personnel. When issued, the safe clearance is the authorization to perform specified work in accordance with the limits of the safe clearance. Safe clearance involves the following general steps:

1 - request for safe clearance by an authorized individual
2 - accomplish requirements for safe clearance (isolation, guarding, grounding)
3 - safe clearance issued
4 - perform work
5 - clear work area of tools and workers
6 - release of safe clearance requested
7 - release safe clearance and return equipment to service

Caution Order: Direct attention to abnormal condition or to a special operating instructions. Instructions will be prepared on an (ENG Form 1928) – Caution Order Sheet.

Clearance Card: DANGER – RED TAG (ENG Form 1925) indicates that the tagged item is not to be operated.

Caution Order Card: (ENG Form 1924) indicates that the tagged item may be operated, provided that the condition or precaution specified thereon is adhered to.

Electrical equipment: any device that produces, consumes, stores, transmits, or converts electrical energy.

Energy control procedure: the overall written procedure (including responsibilities, procedural steps for lockout and tagout, and requirements for testing the effectiveness of energy control measures) to be used for the control of hazardous energy.

Electrical line: any conductor used in the transmission of electrical energy from one point to another

Energy isolation device: a physical device that prevents the transmission or release of energy. Includes, but is not limited to, manually operated circuit breakers, disconnect switches, slide gates, slip blinds, line valves, blocks, or similar devices, capable of blocking or isolating energy, with a position indicator. The term does not include push buttons, selector switches, and other control circuit type devices.

Energy source: includes electrical, mechanical, hydraulic, pneumatic, chemical, thermal, nuclear, stored, or other energy.

Equipment Requiring a Clearance: Equipment upon which work is to be performed shall be covered by a clearance if unauthorized removal or return to service could result in injury, damage, loss of content or loss of protection

Full personnel protection: when a tagout device is used in place of a lockout device, full personnel protection is provided when (1) the tagout device is attached at the same location as the lockout device would have been attached, (2) all tagout-related requirements of this Section have been complied with, and (3) additional means have been taken to provide a level of safety commensurate with that of a lockout device. Such additional means include the removal of an isolating circuit element, blocking of a control switch, opening and tagging an extra (separated by distance) disconnecting device, or the removal of a valve handle to reduce the likelihood of energization.

Hazardous energy control plan: the written plan which clearly and specifically identifies the hazardous energy sources and outlines the scope, purpose, responsibilities, and procedural steps for lockout and tagout and the requirements for testing the effectiveness of energy control measures to be used for the control of hazardous energy from stated sources.

Incidental employee: an employee who, under normal circumstances, would not be in an area where a system is under lockout and tagout but is required to enter or pass through such an area.

Isolation: an activity which physically prevents the transmission or release of energy.

Issuing Authority: Responsible authority or a person or persons designated by the responsible authority (Team Chief, Shift Supervisor).

Lockout: a form of hazardous energy control utilizing the placement of a lockout device, in accordance with established procedures, on an energy isolating device to ensure that the energy isolating device and the system being controlled cannot be operated until the lockout device is removed.

Lockout device: a device that uses a positive means, such as a key or combination lock, to hold an energy isolating device in the safe position and prevent the energizing of a system.

Main Hold Card: indicates that equipment has been removed from service under indicated clearances. It is the Number one card.

Person Clearance is Issued to: anyone designated by the responsible authority to receive a clearance.

Pressure systems: all pipe, tubing, valves, controls, and other devices which operate or are maintained above atmospheric pressure. > ***See definition of vacuum systems***

Responsible Authority: The District Engineer Powerhouse Superintendent, Area Engineer, Resident Engineer and Commander of separate installations and activities are responsible or proper authority. (Team Chief, Civilian responsible for plant).

Stored energy: energy (electrical, mechanical, or chemical) that might be found in a charge capacitor, a loaded spring, chemical solutions, or other similar hazardous form.

System: includes machinery, equipment, and electrical, hydraulic, and pneumatic lines and their subsystems.

Tagout: a form of hazardous energy control procedure utilizing the placement of a tagout device, in accordance with established procedures, on an energy isolating device to indicate that the energy isolating device and the system being controlled may not be operated until the tagout device is removed.

Tagout device: a prominent warning device, such as a tag with a means of attachment, which can be securely attached to an energy-isolating device in accordance with established procedures to indicate that the energy isolating device and system being controlled may not be operated until the tagout device is removed.

Temporary Lift: May be authorized for test operation of the equipment covered by the clearance or for emergency operation of the equipment.

Vacuum systems: all pipe, tanks, tubing, valves, controls, and other devices which operate or are maintained below atmospheric.

APPENDIX B

FORMS

APPENDIX B

Facsimile of Prescribed Forms and Tags

ENG Form 1927-R, Safe Clearance Request (see page B-2)

ENG Form 1928-R, Caution Order Record (see page B-3)

ENG Form 1924, Caution Order Tag (see page B-4)

ENG Form 1925, Danger - Do Not Operate Tag (see page B-5)

LOCATION	CORPS OF ENGINEERS SAFE CLEARANCE REQUEST ER 385-1-31	CLEARANCE NUMBER

AUTHORIZED EMPLOYEE

(NAME/TITLE) _____

(LOCATION/PHONE) _____

ISSUING EMPLOYEE

(NAME/TITLE) _____

(LOCATION/PHONE) _____

DESCRIPTION OF SYSTEM AND HAZARDS TO BE CLEARED _____

PURPOSE OF CLEARANCE _____

NAME AND LOCATION OF POINT OF CONTACT _____

ESTIMATED TIME/DATE FOR COMPLETION OF WORK _____

ESTIMATED TIME TO RETURN EQUIPMENT TO SERVICE IN AN EMERGENCY _____

PROCEDURAL STEPS FOR SHUTTING DOWN, ISOLATING, BLOCKING, AND SECURING SYSTEM TO CONTROL HAZARDOUS ENERGY

PROCEDURAL STEPS AND RESPONSIBILITIES FOR PLACEMENT AND TRANSFER OF LOCKOUT/TAGOUT DEVICES

PROCEDURAL STEPS AND RESPONSIBILITIES FOR REMOVING AND TAGGING, AND MOVING OR REMOVING AND UNTAGGING, PROTECTIVE GROUNDS

REQUIREMENTS FOR TESTING SYSTEM TO VERIFY EFFECTIVENESS OF ISOLATION AND LOCKOUT/TAGOUT DEVICES

MEANS TO ENFORCE COMPLIANCE WITH PROCEDURES _____

CLEARANCE ISSUED TO _____ DATE _____ TIME _____ BY _____

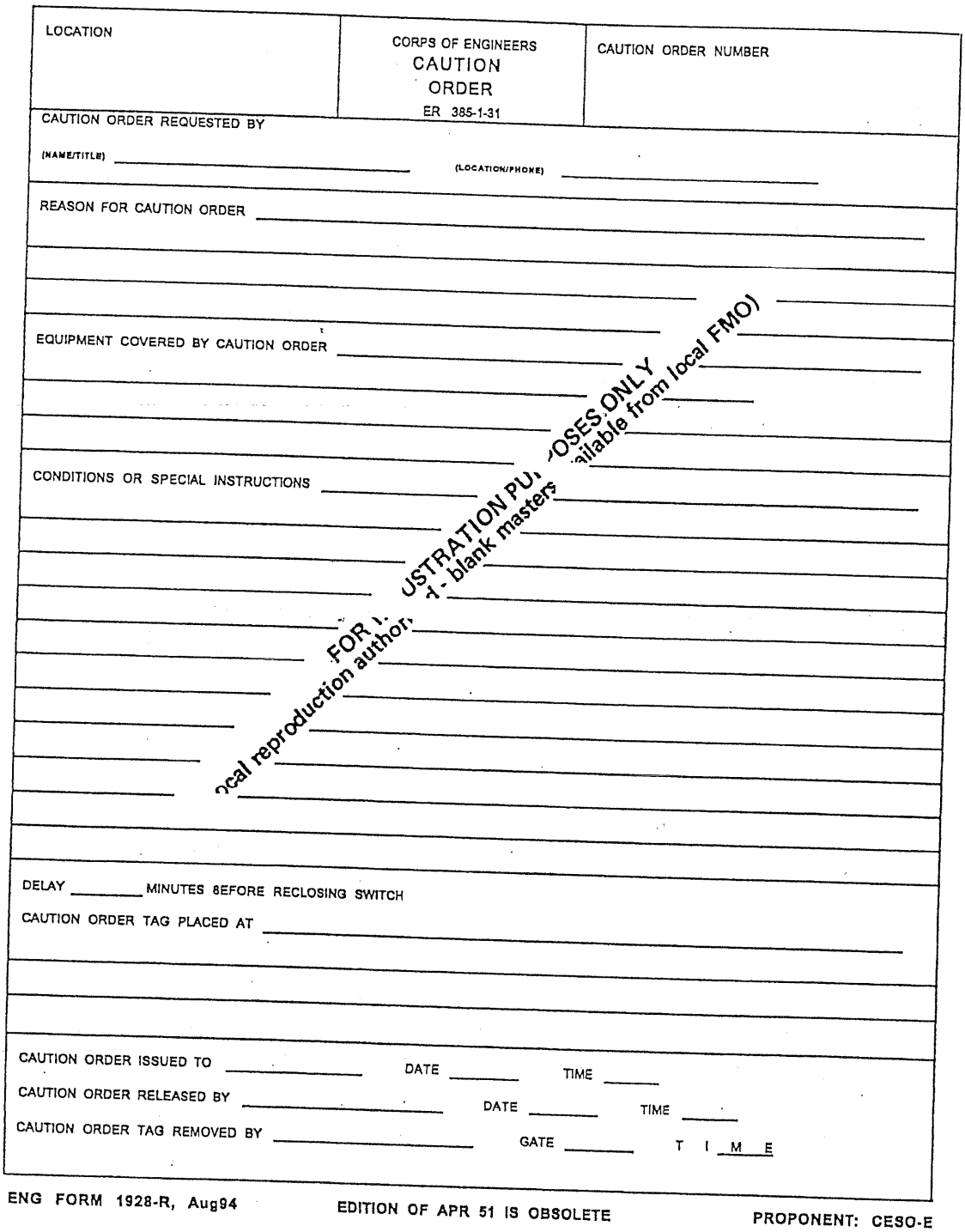
CLEARANCE RELEASED BY _____ DATE _____ TIME _____

CLEARANCE REMOVED BY _____ DATE _____ TIME _____

FOR ILLUSTRATION PURPOSES ONLY
(Local reproduction authorized - blank masters available from local FMO)

ENG FORM 1927-R, Aug 94 REPLACES ENG FORM 1927, May 91
PREVIOUS EDITIONS MAY BE USED
PROPONENT: CESO-E

Figure B-1. Safe Clearance Request, ENG Form 1927-R



LOCATION	CORPS OF ENGINEERS CAUTION ORDER ER 385-1-31	CAUTION ORDER NUMBER

CAUTION ORDER REQUESTED BY

(NAME/TITLE) _____ (LOCATION/PHONE) _____

REASON FOR CAUTION ORDER _____

EQUIPMENT COVERED BY CAUTION ORDER _____

CONDITIONS OR SPECIAL INSTRUCTIONS _____

DELAY _____ MINUTES BEFORE RECLOSING SWITCH

CAUTION ORDER TAG PLACED AT _____

CAUTION ORDER ISSUED TO _____ DATE _____ TIME _____

CAUTION ORDER RELEASED BY _____ DATE _____ TIME _____

CAUTION ORDER TAG REMOVED BY _____ DATE _____ TIME _____

ENG FORM 1928-R, Aug94 EDITION OF APR 51 IS OBSOLETE PROPONENT: CESO-E

ILLUSTRATION PURPOSES ONLY
Available from local FMO)
- blank masters
FOR
local reproduction author

Figure B-2. Caution Order Record, ENG Form 1928-R

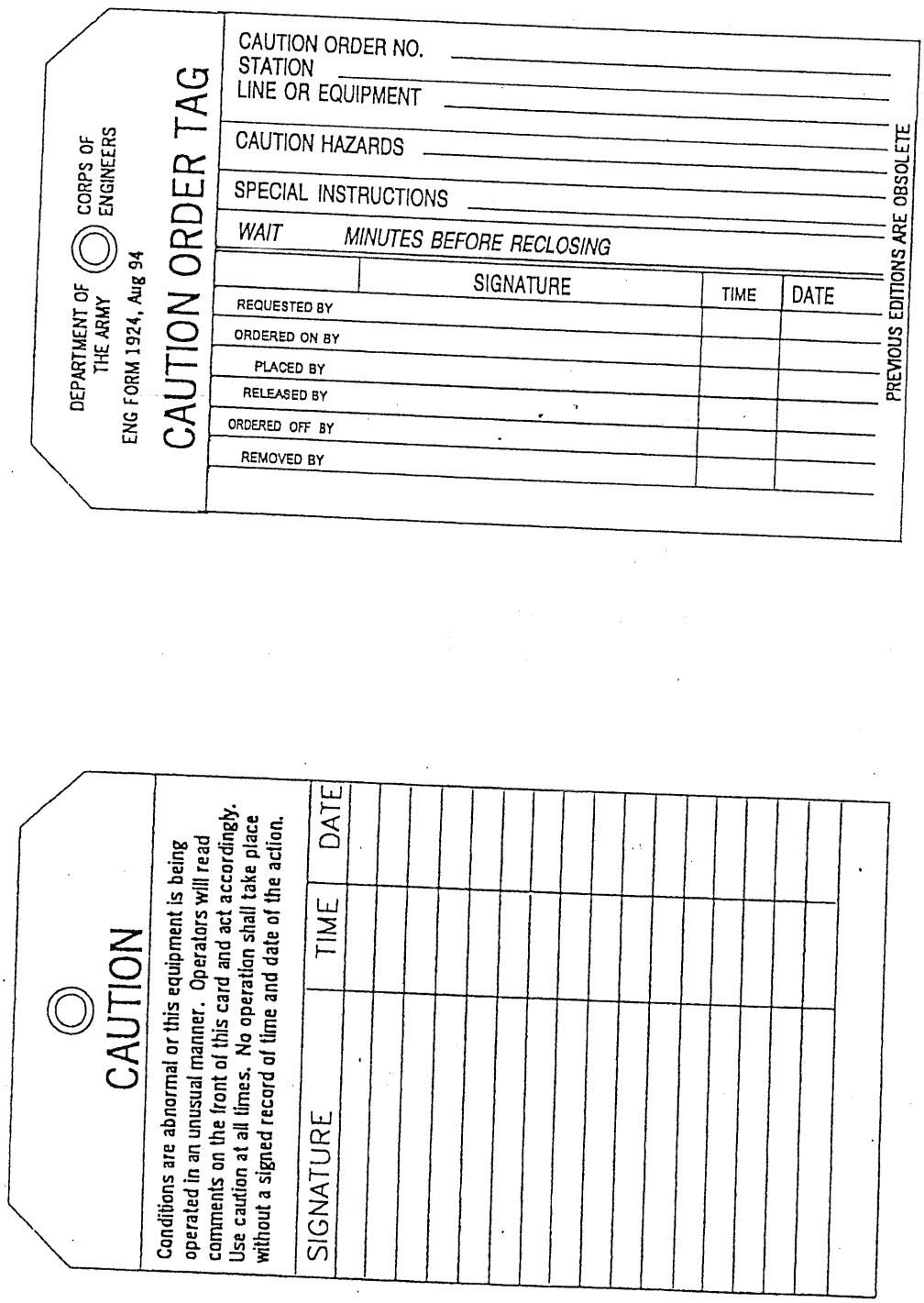


Figure B-3. Caution Order Tag, ENG Form 1924

Figure B-4. Danger - Do Not Operate Tag, ENG Form 1925

APPENDIX C
Equipment List:

ADMIN NO.	MODEL NO.	SERIAL NO.	ENGINE MODEL NO.
Generator 1-1	MP36A	63488FP	EM 16567E4
Generator 1-2	MP36A	63511FP	EM 16567E4
Generator 1-3	MP36A	63502FP	EM 16567E4
Generator 2-1	MP36A	63442FP	EM 16567E4
Generator 2-2	MP36A	63430FP	EM 16567E4
Generator 2-3	MP36A	63421FP	EM 16567E4
Generator 3-1	MP36A	63425FP	EM 16567E4
Generator 3-2	MP36A	63483FP	EM 16567E4
Generator 3-3	MP36A	63417FP	EM 16567E4

Appendix D

The following is a list of UMCS personnel authorized/issued a clearance for the Fort Gordon Power Plant:

DORSEY COMBS	**CHARLES POSTON**
WILLIAM ELLIS	**BRENDA REED**
REUBEN FULLBRIGHT	**NEAL SKVARCA**
GORDON GRIFFIN	

UTILITIES MONITORING AND CONTROL SYSTEMS (UMCS) SPILL RESPONSE PROCEDURES

PURPOSE: The purpose of these procedures is to provide the personnel of UMCS a means of responding to spills of petroleum products or hazardous materials. To outline the steps which must be taken to contain a spill and prevent any environmental damages.

RESPONSIBILITIES: The Environmental Compliance Officer (ECO), will ensure that personnel understand the Spill Response Procedures and notification procedures. All UMCS personnel are responsible for employing safe practices when handling and using hazardous materials and POL liquids, to be familiar with the this plan and to be prepared to function as the first IC in case of a spill. All employees should be aware of the location of response and cleanup supplies.

PROCEDURES:

A. DISCOVERY.

1. Initiate the response.

(a) Whenever a release of POL or hazardous material occurs, call 911.
(b) Senior Employee assumes responsibility until relieved by the fire department.
(c) Initiate immediate response.

B. INITIAL RESPONSE ACTION.

1. Primary Goals of the Initial Response Action:

(a) Personnel Protection.
(b) Stopping the Flow.
(c) Containing the Spill.
(d) Mitigating Action.
(e) Protecting Sensitive Areas.

2. Determine the Spill Level.

(a) **Level 1** – Non-hazardous material. Can be handled by Fort Gordon personnel and equipment.

(b) **Level 2** – Hazardous material or may require outside assistance.

3. **Internal Notifications.**

(a) Notify Supervisory Chain.

(b) Notify the Fire Department.

(c) Provide the following information:
1) What was spilled?
2) How much was spilled?
3) Exact Location.
4) Threatened Sensitive areas.

4. **External Notifications.**

(a) The ECO assesses situation and notifies Environmental and Natural Resources Management Office if necessary.

(b) The ECO confirms the Spill Level.

1) If a **Level 1** spill, determine resources available to respond to spill
2) If a **Level 2** spill also:

- ✓ Make emergency calls.
- ✓ Brief emergency responders on situation.
- ✓ Have MSDS ready.
- ✓ Determine if Reportable Quantity.
- ✓ Call third party if responsible.

5. **Mitigating actions** are to be taken to reduce potential for damage from spill.

(a) Remove sources of potential ignition.
(b) Ventilate the area.
(c) Stop the flow if possible
(d) Contain the spilled material.
(e) Protect sensitive areas.

C. SUSTAINED ACTIONS.

1. Initiate Cleanup.

(a) Remove free product and contaminated material.
(b) Request additional resources if needed.
(c) Take samples if necessary.
(d) Coordinate with regulatory agencies.

2. Waste Handling.

(a) Ensure waste is properly containerized and stored.
(b) Dispose of hazardous waste properly.

3. Proper Equipment and Training.

(a) Use proper equipment.
(b) Ensure personnel are properly trained.

D. INCIDENT CLOSURE.

1. Debriefing.

(a) Conduct as soon after incident as possible.
(b) Include all pertinent information.
(c) Obtain decision on closure from IOSC.

2. Permanent Record.

(a) Incident Log.
(b) Cause of Spill.
(c) Reports.
(d) Notifications.
(e) Sampling Plan and Data.
(f) Correspondence.
(g) Disposal Manifests.

3. Follow-up.

(a) Recommendations for changes to spill response procedures.
(b) Damage Assessments.

E. Records Management.

(a) Appointment Orders for the UMCS Hazardous Material Officer (HM) or Environmental Compliance Officer (ECO) are to be kept on file.
(b) Training records of the HM/ECO and training conducted for personnel exposed to HM/HW. All required Certification Training and Briefings.
(c) References to ALL Environmental requirements.
(d) Hazardous Communication (HAZCOM), records are to be filed.
(e) Spill Prevention Guidelines.

F. Hazardous Material Minimization (HAZMIN).

(a) HAZMIN means reducing the amount and toxicity of the HW generated or produced. All personnel are responsible for engaging any and all measures within their control to minimize HW/HM.

G. Hazardous Material Inventory.

(a)

H. Hazardous Material Training Requirements.

(a) Training is key to accomplishing the mission. All personnel should have environmental awareness training because it leads to a safer performance and establishes an environmental ethic among employees. Training should be performed as often as required per regulations. The ECO/HM is responsible for conducting training to personnel.

I. Hazardous Material Communications (HAZCOM).

(a) An effective HAZCOM Program will assist management in determining what hazardous chemicals are present in the organization, how to protect employees from hazards those chemicals present, and how to properly store and use those chemicals. In support of HAZCOM, management should-

- Ensure that employees receive adequate training on HM to which they are exposed to in the workplace (Occupational Safety and Health Act (OSHA) requirement).

Hazardous Material Communications (HAZCOM) cont.

- Maintain an up-to-date list of all HM/HW known to be present in their area.
- Ensure that containers of hazardous substances are labeled, tagged, or otherwise marked to identify the material and warn employees of hazards.
- Maintain a MSDS for every HM in their area
- Ensure that employees are trained to recognize, understand, and use MSDS and labels for the HM they use.
- Ensure that employees use proper procedures when working with hazardous substances.

NOTE: All of the above should be accomplished through the ECO/HM Officer.

J. Hazardous Waste Accumulation.

(a) The Hazardous Waste Accumulation Point should be located close to the point of generation; containers should be protected from the weather; containers should be secured and have lids on; containers should have at least 3 ft. between each of them; incompatibles should not be stored together; area should have dikes or catchments and ground barriers. MSDSs should be available along with fire fighting equipment and spill cleanup materials. A telephone and signage should be posted for identification.

K. Hazardous Waste Labeling.

(a) All waste containers **MUST** be labeled in accordance with regulations for identification and warning to personnel as to what manner of waste is being stored in the container and the date.

L. Hazardous Waste Storage.

(a) Storage areas must meet regulatory requirements and provide adequate area to provide required spacing between containers. Storage area is to be locked at all times and identified with signage.

M. Hazardous Waste Transport.

(a) Hazardous waste is transported within guidelines of the Federal Regulations and the Department Of Transportation. Before transporting any HW coordination must be made with the Directorate of Logistics (DOL) and Facilities Management Office (FMO).

N. Hazardous Waste Turn-In.

(a) Waste material must be in a safe, nonleaking, durable container. If a container leaks, contact the environmental office or Defense Reutilization and Marketing Office (DRMO). Procedures for turn-in of HM/HW, include filling out and processing the turn-in document.

O. Spill Prevention.

(a) Spill prevention can be accomplished by training on proper usage and performance of tasks in work areas. Employees are encouraged to use every precaution possible when working with hazardous materials to include personal protective equipment.

P. Recycling Program.

(a) The Army is promoting increased use of product separation, substituting materials and changing procedures to avoid the use of hazardous substances (Source reduction), and recycling to reduce the volume of solid waste. Follow the Installation recycling program. In doing so, personnel should-

- Ensure that all recyclable materials are being recycled.
- Ensure that recycling material source is separated. Contaminated material must be removed from recyclable.

Q. Environmental considerations.

(a) The ECU/HM Officer will perform a Risk Assessment. The process is as follows:

- Identify all hazards associated with training/operations
- Assess probability for environmental damage
- Make decisions and develop controls

- Brief Management Chain
- Implement Controls
- Supervise

ANNEX C (MAINTENANCE) APPENDIX 1 (SOURCE OR ASSISTANCE) TO THE UTILITIES MONITOR AND CONTROL SYSTEMS (UMCS) SOP

1. Sources of assistance available to management and organizational maintenance personnel include JCWS, local MAIT, and administrative sources such as the Equipment Improvement Program, (EIR), the Army Suggestion Program, and others. Each are discussed in detail in the succeeding paragraphs.

2. Johnson Controls World Systems (JCWS) - Frequently, has the necessary expertise to solve the UMCS's power plant maintenance problems within its support maintenance activity (JCWS). Direct coordination between the UMCS Manager or On-Duty operators, in order to obtain maintenance support assistance, is encouraged.

3. Maintenance Assistance and Instruction Team (MAIT) -Your local installation MAIT is organized with the objective of providing effective and responsive assistance which emphasizes hands on training with regard to maintenance instructions. Its functions and operations are outlined in AR 750-1. The purpose of the MAIT is to provide maintenance management and technical expertise to commanders by helping them identify and solve their problems in equipment maintenance, shop operations, repair parts supply, TAMMS records or other maintenance related areas.

4. Equipment Improvement Recommendation (EIR)

a. Although not a source of assistance, the EIR is a method that will isolate discrepancies involving equipment design, abnormal failures, poor quality and suggested changes in equipment or maintenance procedures.

b. Appendix G, of this SOP, explains the procedures for preparing, addressing, distribution, filing and retention of SF 368 used for submitting EIR's and QDR's (Quality Deficiency Reports). A copy will be forwarded to the Facilities Engineering Manager for appropriate action. A copy will be forwarded to JCWS for entry into a database.

5. The US Army Material Readiness Support Activity, through PS Magazine, has been instrumental in researching and answering questions and providing step by step, practical guidance on a variety of maintenance and supply issues. Questions should be addressed to MSG Half-Mast, Preventive Maintenance Monthly, LOGSA, Bldg. 5307, Redstone Arsenal, AL. 35898-7466 or E-Mail to psmag@logsa.army.mil.

ANNEX C (MAINTENANCE) APPENDIX 2 (CONTROLLED EXCHANGE) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. **Controlled Exchange**:

a. Controlled exchange of components and repair parts is authorized for readiness purposes only. Controlled substitution will be conducted IAW AR 750-1.

b. The Facilities Engineering Manager may authorize the controlled exchange of repair parts for equipment if it is the only means reasonably available of eliminating an adverse effect on the operational readiness of the organization. The following criteria must be met:

(1) The maintenance effort required to restore the unserviceable equipment to a serviceable condition is within the maintenance authority and capability of the personnel performing the controlled exchange.

(2) Required serviceable parts, components and assemblies cannot be obtained on a timely basis through direct exchange (D), routine maintenance or supply channels.

(3) The unserviceable, economically repairable equipment from which the serviceable part, components or assemblies are removed are classified NMCS (non-mission capable - supply) which means the part removed is to be ordered.

(4) The controlled exchange action will immediately restore one or more of the unserviceable pieces of equipment to a serviceable condition.

(5) Such action will not degrade any of the equipment to an uneconomical repairable condition.

(6) All actions are immediately taken to prevent further degradation of equipment from weather or adverse conditions and prompt action is taken by the UMCS to restore the unserviceable equipment to a fully serviceable condition.

(7) In the instance where the exchange satisfies a repair part requirement already due in or on requisitioned through the normal supply system, that requisition must be canceled or applied to the remaining unserviceable repairable equipment in order to restore it to a serviceable condition.

ANNEX C (MAINTENANCE) APPENDIX 3 [EQUIPMENT IMPROVEMENT REPORT (EIR), PRODUCT QUALITY DEFICIENCY REPORTS (PQDR)] TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. **References:**

a. Chapter 11, DA Pam 738-750.

b. Functional Users Manual for the Army Maintenance Management System (TAMMS).

c. Maintenance Management Update 3-14, dtd 01 Aug 94.

2. **General.**

This appendix outlines the use of SF-368, Equipment Improvement Report (EIR), Product Quality Deficiency Report (PQDR), and Initial Failure of Stock Funded Depot Level Reparable's (SFDLR).

3. Lack of documentation of failures of equipment/components utilized by the UMCS and its prior designations is unacceptable.

4. Addressees and subordinate elements will utilize SF-368. Lack of all data does not eliminate the requirement to utilize the form.

5. Routing of the form is per reference in para 1., of this appendix. Forward a courtesy copy to Johnson Controls World System (JCWS) to establish a master file for the UMCS.

6. Damaged/unserviceable, new components are to be turned in as per normal supply function. Items rebuilt or furnished by JCWS will be returned to JCWS along with a SF-368. JCWS will repair components or hold them as exhibits.

ANNEX C (MAINTENANCE) APPENDIX 4 (HIGH VOLTAGE GLOVE TESTING) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. The UMCS Manager will coordinate with appropriate authorities either through the local DPW or commercial utility company to test high voltage gloves prior to use.

2. High voltage gloves will be tested by Heavy Maintenance Section of the 249th Engineer battalion (PP), on a case by case basis when other expedient means are not available.

3. Each pair of gloves will be tagged with a requirement to verify the dielectric strength before use.

ANNEX C (MAINTENANCE) APPENDIX 5 (GENERATOR PAINTING) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. Reference TM-43-0139, Painting Instructions for Field Use, dtd 1 August 1986.

2. Found at enclosure A to this appendix are the standards for painting generator sets now in use by the 249th Engineer Battalion (Prime Power) and are to be followed by the UMCS.

3. Exceptions to this policy are to be addressed to the Executive Officer, 249th Engineer Battalion (Prime Power).

4. For contracting purposes, costs for transportation to and from the work site are to be included in any estimate for work.

5. Recipients of this appendix are responsible for informing subordinate elements of the painting criteria.

ANNEX C (MAINTENANCE) APPENDIX 5 (GENERATOR PAINTING) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

ENCLOSURE A

PAINTING STANDARDS FOR GENERATORS

1. Interior Surfaces:

   a. Steam clean.

   b. Blast clean areas of corrosion to conform with SSPC-SP6 (Commercial Blast Clean).

   c. All areas shall be blown clean prior to application of primer or paint.

   d. Compressed air shall be oil free.

   e. All accessible areas solvent cleaned to conform with SSPC-SP2 (Solvent Cleaning).

   f. Decals, data plates, wiring harnesses, etc. will be protected.

   g. All debris removed.

h. One primer coat of Enamel, Rust-Inhibiting, Olive Drab (33070), (TT-E-485); 1 mil dry film thickness.

i. One topcoat of Enamel, Rust-Inhibiting, Sand (33303), (TT-E-485); 1 mil dry film thickness.

2. Engine and Generator:

   a. Clean as for interior surface.

   b. Decals, data plates, wiring harnesses, etc. will be protected.

c. Two coats of Cummins engine paint, sand color, P/N: 3375383; 3 mil dry film thickness per coat.

3. Exterior Surfaces:

a. Blast cleaned to conform with SSPC-SP10. Areas of corrosion cleaned using chlorides and less than 1% silica.

b. Compressed air shall be oil free.

c. All areas shall be blown clean prior to application of primer or paint.

d. One primer coat of Primer, Epoxy Coating, Corrosion Inhibiting, Lead and Chromate Free (MIL-P-53022); 1 mil dry film thickness.

e. Two top coats of Coating, Aliphatic Polyurethane, Chemical Agent Resistant (MIL-C-53039); Forest Green (34083); 1 mil dry film thickness per coat. Paint shall cure as per manufacturer's data.

4. For the purpose of contracting, the follow dimensions apply.

MEP-208A Length: 330" Width: 96" Height: 100" Weight: 40000#
NSN: 6115-00-450-5881

MEP-012A Length: 241" Width: 96" Height: 101" Weight: 25000#
NSN: 6115-01-143-3850

MEP-029A Length: 219" Width: 88" Height: 120" Weight: 33000#
NSN: 6115-01-030-6085

ANNEX D (MAINTENANCE) APPENDIX 1 (EQUIPMENT IDENTIFICATION MARKERS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. General.

This appendix provides direction on the selection and placement of vehicle and equipment unit identification markings, which will be standard throughout the battalion, IAW TB 43-0209, change 1, dated October 1990.

2. Company commanders will assign unit identification markings to MTOE listed equipment based on the following system:

a. Co. "Alpha" Identifiers:

A = A Company.
B = B Company
HQ = HHC/Prime Power School

b Numeric Identifier Series:

0 = Company Headquarters
100 = 1st Platoon
200 = 2nd Platoon
300 = 3rd Platoon
400 = 4th Platoon

c. Unit identification numbers will be similar for like equipment. The following numeric series applies to all MTOE listed equipment for line companies:

6 = CDR/Power Station Commander
8 = 2 ½ to truck
9 = Contact truck
10 = Forklift
10T = Cable reel trailer
11-14 = 750kW generators
17 = 500kW generator
18 = Small tactical
19 = CCV
20-39 = BBS/DDS
40-49 = Fuel pods
51-56 = Substations
60-65 = Pump units
71 = Load bank
72-73 = Carry-alls
74-76 = Admin vehicles
77-79 = Maintenance vehicles

ANNEX D (MAINTENANCE) APPENDIX 1 (EQUIPMENT IDENTIFICATION MARKERS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

NOTE: Trailers or trailer-mounted equipment will include a "T".

EXAMPLES:

A Co, 1st Plt mobile substation = A152T
B Company Commander = B6
A Co, 2nd Plt forklift = A210

d. The following numeric series applies to all MTOE listed equipment for HHC:

Command Section	6	= CMD
HQs Company	5	= CDR
	8	= 2 ½ ton truck
	8T	= 1 ½ ton cargo trailer
S-2/S-3 section	3	= 3/4 ton tactical truck, M1009
	3T	= 3/4 ton cargo trailer
	31	= 1 1/4 ton cargo truck, M1008
S-4 section	4	= 1 1/4 ton cargo truck, M1008
	4T	= 3/4 ton cargo trailer
	40	= 2 ½ ton cargo truck
	40T	= 3/4 ton cargo trailer
HM section	150	= 1 1/4 ton cargo truck, M1008
	150T	= 3/4 ton cargo trailer
	152	= Contact truck
	153	= Contact truck
	155	= 1 ½ ton cargo truck
	155T	= 1 ½ t cargo trailer
	156	= 5 ton tractor
	156T	= 25 ton low bed semitrailer
	157	= 5 ton tractor
	157T	= Shop equip semitrailer
	158	= 10 ton tractor
	158T	= Shop equip elec semitrailer
	159T	= 12 ton supply van semitrailer
	161	= VRRT forklift
	162	= 6000 lb elec forklift
	163	= 10 ton rough terrain forklift
	164	= 6000 lb gas forklift
	165	= 40 ton crane
	173G	= 60kW gen set

EXAMPLE:

BN CDR = HQ6
S-4 cargo trailer = HQ40T

3. Location: Unit identification markings are divided into two groups of two elements arranged from left to right. The Major Command and Intermediate Organization markings **"CE 249E"** will be placed on the left side (as you directly face the front or rear bumper area), and the Unit and Equipment number (e.g. HQ40) will be place on the right side. The unit identification markings will normally appear on both the front and rear of each vehicle or piece of equipment. Suitable surfaces (bumperette, tailgates, fender, or front and rear surface area) may be used provided the unit identification markings do not conflict with the location and legibility of other markings. Where no suitable surface is available at the front or rear, the markings will be applied is an appropriate location on each side of the equipment/vehicle.

4. Size: Unit identification markings will be 3" in height, with the following exception: On vehicles where the appropriate surface area prohibits the use of 3" characters, 2" characters will be used. In all cases, all markings on a piece of equipment will be the same size. Markings will be the same size on like pieces of equipment.

5. Type: All letters and numerals used in marking will be of the Gothic style. Markings will be painted using stencil sets NSN 7520-00-298-7044 for 2", NSN 7520-00-272-9683 for 3", and NSN 7520-00-298-7043 for 1" character size. All markings on camouflage painted vehicles will be painted with contrasting lusterless black 37030 or lusterless green 383 (34094).

6. Additional authorized markings:

a. National Symbol (star): All existing stars will be removed and replaced by a 3" star (five-point star fitting 3" diameter circle) painted in contrasting lusterless black or green, on the front and rear of the equipment. Placement should be centered on the equipment, on line with the unit ID markings. On the rear of wheeled vehicles, the star may be centered on the tailgate.

b. Registration Number: IAW TB 43-0209, SECTION III, Para 7, the registration number shall be placed in 2" characters on any appropriate interior area which is visible from outside a locked or secured item.

c. Technical/Instructional Markings: Markings such as tire pressure, fuel type, max tow speed, or fill level will be painted using one 1" stencils in the same color(s) as the unit identification marking. Consult TB 43-0209, section 12 for further directives regarding technical/instructional markings.

d. Operator/Assignee Identification Markings on Windshield: All tactical vehicles equipped with a front windshield will bear the names of the primary operator and individual to whom that equipment is assigned. The name of the primary operator will be painted on the lower right area (as seen from front) of the driver's side windshield, using 1" stencils and lusterless black paint. The name of the individual to whom the equipment is assigned (or primary passenger) will be painted on the lower left area (as seen from front) of the passenger's side windshield, using 1" stencils and lusterless black paint.

ANNEX E (MAINTENANCE) APPENDIX 1 (POWER PLANT OPERATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. PURPOSE: To outline and establish administrative and power plant operation procedures necessary to ensure the power plant operates safely and efficiently. To ensure proper procedures are followed to provide necessary prime utility power to customers under continuous, standby, or energy saving situations.

2. SCOPE: These guidelines applies to all Utility Monitor and Control Systems (UMCS), personnel assigned to the power plant as well as all guests and visitors of the power plant. The power plant manager is responsible for maintaining, enforcing and ensuring that all assigned personnel understand its provisions.

3. RESPONSIBILITIES:

a. UMCS Manager: The duties of the Power Plant/UMCS Manager are as follows:

1. Responsible for coordinating all development and maintenance activities.
2. Ensure newly assigned/attached personnel and guests/visitors are briefed on applicable portions of the power plant SOP.
3. Establish Control Room Operators duties and responsibilities.
4. Establish Equipment Operators duties and responsibilities.
5. Establish procedures for maintaining plant logs and records.
6. Establish procedures for bringing generators on and off line.
7. Plans the plant operational shifts.
8. Review operator's qualification records.
9. Ensures timely coordination with exterior electric personnel, as necessary, to meet changing mission requirements.
10. Ensures that the plant is operated to meet and maintain mission-prescribed power output parameters.
11. Ensures that the supplies, materials, tools, and equipment for plant operations are available.
12. Ensures that plant operations, safety, and individual equipment maintenance/historical records are maintained.
13. Ensures that Power Plant Checklist provided in this SOP is completed as the tasks are performed.

Plant Safety Officer: The duties of the Plant Safety Officer are as follows:

1. Ensure that the plant is operated in a safe manner and according to procedures prescribed for high-voltage power plants as outlined in **Annex B** of this SOP.
2. Ensure that all fire extinguishers are serviceable and readily accessible.
3. Conduct safety inspections of the plant in order to assure that all fire hazards are removed.
4. Ensures that first aid kits are available and serviceable.

Equipment/Control Room Operator: The duties and responsibilities of the EO/CRO are:

1. Performs pre-operational checks, operator maintenance, and post-operational checks on individual units.
2. To operate the plant in a safe and efficient manner.
3. Maintain the unit/plant hourly readings.
4. Make the appropriate entries into the unit/plant log books.
5. To ensure that logbook entries are up to date and accurate.

Log Book Entries: The following log books will be maintained following the procedures outlined in **Annex B** of this SOP:

1. Unit Log Book
2. Centralized Control Van (CCV) Log Book
3. Fort Gordon Power Plant Log Book (When used as peaking plant)
4. Maintenance Log Book

The log book entries shall contain at a minimum the following entries:

a. The name of the Control Room Operator/Equipment Operator.
b. Any clearances or cautions.
c. The status of the plant.
d. Each time a unit is started, stopped, has pre and post operational checks performed, and any distribution switching or circuit breaker trips or closing.
e. The kilowatt-hours, circuit breaker trips, and engine hours of each generator.
f. The CCV kilowatt-hours and load tie breaker trips.
g. Any information concerning an outage or equipment trouble.

4. POWER PLANT OPERATIONS:

a. **The following procedures are required to bring a generator on line and provide power to the Fort Gordon grid.**

Auto loading and unloading of units
"PARALLELING WITH UTILITY"

CONDUCT PRE-INSPECTION AND PRE-START PROCEDURES.
BEFORE STARTING SET UP FOLLOWING CONDITIONS.

Blue is in Control Room

Green is in Relay Room

Check off list

CLOSE BATTERY KNIFE SWITCH

UNIT BREAKERS

1. Take unit Circuit Breaker out of trip position, (DO NOT CLOSE)..
2. Check speed pot position, should be on "zero", between 4 & 5 each unit. (may adjust if sync scope turning to fast)
3. Unit parallel switch in parallel position.- DOWN
4. Check Automatic Voltage Adjust to see if it is on MARK.
5. Turn sync scope ON.

Relay Room

1. DSLC panel (relay room) sync mode switch - OFF position.
2. Droop isoch switch - DOWN for isoch.
3. Raise voltage - DOWN.
4. Lower voltage - DOWN.
5. Base load – UP.
6. Load / unload - UP.
7. Raise/Load/lower Switch - CENTER Position.

ANUNCIATOR PANEL

1. Take Bus Tie Breaker out of trip position and **CLOSE.**

2. Idle Rated Switch - Idle position **DOWN.**

3. Auto Manual Switch - **MANUAL** position.

4. Emergency Speed Control - **DOWN.**

5. OFF-RUN Switch – **OFF.**

RESET ANUNCIATOR PANEL (all three units)

Auto loading and unloading of units
Starting Engines from Control Vans.

Step 1:

Annunciator Panel

1. Turn OFF-RUN Switch to **RUN.** (You should hear a click sound)

2. Turn Auto-Man Switch to **AUTO.**

3. If Generator doesn't Crank, Reset Annuciator and Emergency Consist Button
   Always check that you have voltage

Bringing Unit on line with utility - (Peaking)

Step 2:

PLACE GREEN & YELLOW ROTARY KNOBS IN UNIT YOU ARE BRINGING UP TO SYNC SPEED

4. Turn Idle Rated Switch to **RATED.** Voltage should build to preset value, around 4160V @ 60HZ.
   (If not, reset **Annuciator & Emergency Consist Button)**

5. Turn Sync Mode Switch to **RUN.** (Breaker will close when synchronized)
   If breaker does not close turn switch back to **OFF** and then to **RUN.**

6. Turn Sync Mode Switch to **OFF** Position". **(After synchronization and Unit Breaker closure)**

AT THIS POINT THE UNIT WILL AUTOMATICALLY RUN UP TO 750 KW AND STOP
(Keep VARS out @ 0-200) Check VARS, for high vars out **lower voltage** on DSLC,if you have vars in **raise** voltage on DSLC

7. Place the raise/load/lower switch to **Raise** Position (UP) **to pick up kW desired.**

8. Put raise/load/lower switch to **CENTER position when desired kW's are reached.**

9. **Turn sync scope OFF.**

b. **To bring the power plant off line**

Bringing unit Off line.

1. Place green & yellow selector knobs in unit you are bringing off line.

2. Load/unload switch - place in unload position (DOWN). It will bring load down to 150 kW. *Breaker should open AUTOMATICALLY. If not, open manually.*

3. Reset fault on annunciator panel. (If you don't reset the units will not time out.)

4. Turn Auto/Man Switch to MANUAL.

5. Issue STOP signal with Stop/Start Switch.

6. Idle/Rated Switch to IDLE Position.

7. After all 3 units are in cool down cycle open main bus tiebreaker, and lock out.

8. Unit will be in timed Shut Down Mode (10-12 minutes). When unit stops turn off/run switch to OFF position. Open DC Knife switch and Lock-Out unit breakers.

Wait 30 minutes after units shut down and turn off pre-lube pumps.
If not expecting to run within 24 hours, open the blow-down valves.

c. **Deadload Procedures**

Blue is in Control Room

Green is in Relay Room

Check off list

CLOSE BATTERY KNIFE SWITCH
MAKE SURE BUSS TIE BREAKER IS OPEN

UNIT BREAKERS

1. Take unit Circuit Breaker out of trip position, (DO NOT CLOSE).

2. Check speed pot position, should be on "zero", between 4 & 5 each unit. (may adjust if sync scope turning to fast)

3. Unit parallel switch in parallel position.- DOWN

4. Check Automatic Voltage Adjust to see if it is on MARK.

5. Turn sync scope ON.

Relay Room

1. DSLC panel (relay room) sync mode switch - OFF position. (all three units)

2. Droop /isoch switch - DOWN for isoch. (all three units)

3. Raise voltage - DOWN. (all three units)

4. Lower voltage - DOWN. (all three units)

5. Base load – DOWN. (all three units)

6. Load / unload - UP. (all three units)

7. Raise/Load/lower Switch Load position (Center Position)

ANUNCIATOR PANEL

1. Idle Rated Switch - Idle position DOWN.

2. Auto Manual Switch - MANUAL position.

4. Emergency Speed Control - DOWN.

OFF-RUN Switch – OFF.

RESET ANUNCIATOR PANEL (all three units)

Annunciator Panel

1. Turn OFF-RUN Switch to RUN. (Listen for a click)

2. Turn Auto-Man Switch to AUTO.

3. If Generator doesn't Crank, Reset Annuciator and Emergency Consist Button

Bringing Unit On Line

1. PLACE GREEN & YELLOW ROTARY KNOBS IN UNIT YOU ARE BRINGING UP TO SYNC SPEED

2. Turn Idle Rated Switch to RATED. Voltage should build to preset value, around 4160V @ 60HZ. (If not, reset Annuciator & Emergency Consist Button)

3. Turn Sync Mode Switch to RUN. (Breaker will close when synchronized) If breaker does not close turn switch back to OFF and then to RUN.

4. Turn Sync Mode Switch to OFF Position". (After synchronization) Be sure to check each unit after synchronizing with first unit. Check for excessive kW or amp. If kW of amp is high or raising, trip unit out.

5. CLOSE LOAD TIEBREAKER. Be sure to check each unit after synchronizing with the first unit. Check for essive kW or amp. If kW of amp is high or raising, trip unit out.

6. Turn Sync Scope OFF.

Bringing unit Off line.

1. Open Load Tiebreaker & lock out.

2. Issue Stop with Start/Stop Switch. Breaker should open, If not, open manually with breaker handle.

3. Turn Auto/Man Switch to MANUAL.

4. Issue STOP signal with Stop/Start Switch.

5. Idle/Rated Switch to IDLE Position. Units will time out in about 10-12 min.

6. After unit shuts down turn Off/Run Switch to OFF position.

7. Open DC Knife switch and Lock-Out unit breakers.

c. Cautions and Clearances

1. The UMCS Manager has the authority to issue and release a safe clearance or caution during power plant operations
2. The Officer has the authority to request issue of, a safe clearance or caution.
3. Cautions and Clearances will be completed following the procedures outlined in **Annex D** of this SOP.

Weekly Generator Status and Maintenance Report:

a. Equipment status
b. Total engine hours
c. kWh produced by each generator
d. Engine hours by generator set
e. CCV kWh reading
f. Total Power Plant kWh reading from meter on substation
g. Maximum kW load
h. Power Plant fuel consumption
i. Issues and concerns

6. Report of significant events: The Operator will immediately report any of the following significant events to the UMCS Manager.

a. Any accident resulting in injury, or major property damage.
b. Generator deadline.
c. Any event deemed serious enough by the Operator.

ANNEX E (MAINTENANCE) APPENDIX 1 (POWER PLANT OPERATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

Power Plant Checklist

I, _____, assume duties as the Power Plant Operator with _____, as the Power Plant Safety Officer. We have read and understand the Power Plant SOP.

POWER PLANT Operator	POWER PLANT SAFETY Officer
_____	_____
Printed Name	Printed Name
_____	_____
Signature Date	Signature Date

ITEM	INITIALS / DATE / TIME
Check for active cautions and clearances	
Verify that all cautions are signed prior to operation	
Make appropriate entries into unit log books	
Verify air switch to unit is OPEN	
Verify that Pre-Operational Checks on unit are completed	
Fire Extinguisher present and serviceable for each unit	
Grounds on each unit are checked for tightness and serviceability	
Contact Exterior Electric Shop for Authorization (Enter POC Name)	
Verify that drip pans are empty	
Turn on fuel supply to unit and check for leaks	
Close air switch to unit (Do not lock)	
Start unit and run at no load for 15 minutes to warm up	
Parallel Unit with the grid and close circuit breaker	
Maintain a .9 - .95 PF while online (DO NOT EXCEED 5.5MVA)	
Decrease unit load to less than 50kW and 10A	
Open unit circuit breaker	
Run unit 15 minutes at no load for cool down	
Shut down unit	
Open unit air switch and lock	
Turn off fuel supply to unit	
Contact Exterior Electric Shop to inform them that units are offline	
Conduct Post Operation checks on the unit	
Make appropriate entries into unit log books	

Operating Log Book (Eng Form 2198) Procedures

1. An Operating Log Book will be assigned to each generating unit. The Log Book should:

    a. Be a chronological history of all operations of the unit.
    b. Contain all maintenance performed and noted with a reference to the Equipment Maintenance Register (Annex 3) for a complete, detailed description of maintenance performed.

2. Procedures for preparation of the Log Book are:

    a. Cover

        1. FOR: Enter the size in kilowatts, the national stock number, and serial number of the generator set.
        2. VOL NO: Enter "1" for the first Log Book initiated. Enter "2" for the second and appropriate sequential numeral for any subsequent forms initiated.
        3. FROM: Enter the day, month, and year the form is initiated.
        4. TO: Enter the day, month, and year the form is completed. This date on Vol. No 1 will be the same as the FROM date on Vol. No 2, etc.

3. Log entries will be clear, complete, and concise to allow full understanding.

4. All entries will be neatly **PRINTED** in **black** ink with the exception of clearance order entries, which will be in RED ink.

5. Errors will be lined out with a single line and initialed by the person making the correction. NO ERASURES ARE PERMITTED.

6. Log pages will be numbered consecutively and will contain the day, month, and year, in this order, and the positions and personnel filling them during the shift, e.g., 25Jan1993 Equip Tech James, Operator.

7. Each Log Book entry will show the time of the entry. All entries will follow the chronological sequence of events. Entries which have specific time bearing will be prefixed in the "Time Column" by the word "NOTE", e.g., fuel added, oil added. Enter the time for each entry. Use the 24-hour military clock time; i.e., 1:15 AM will be entered as 0115, 2:37 PM will be entered as 1437. In the Entries Column enter the narrative of the event being recorded. The person making the entry will sign his/her name on the next available line below the narrative entry. When the entry ends on the bottom line, the signature will be placed on the bottom margin of the page. Late entries, if by the circumstances of events an entry is made out of sequence, it may be added to the log out of time sequence. There will be a note in the date column calling attention to this by the use of the words " Late Entry"

8. Procedures for completing the interior pages of the Log Book are:

a. Heading

1. Position - Leave blank.
2. Operators. Enter the name of the shift supervisor (person in charge) for each shift on the top line. When the supervisor is also the operator use a ditto symbol on the second line. When desired the names of additional plant personnel working on that shift may be entered on lines 3 through 6
3. Day. No entry necessary.
4. Month. Enter the month the page is initiated.
5. 19__. Enter the year the page is initiated.

NOTE: When used as an Annual inspection. Enter the date and time as prescribed previously. To complete the entries column; enter the words Annual Inspection, the organization performing the inspection and the names of the inspection team personnel. Enter significant comments, or any limiting operational information. The Chief inspector will sign this entry. When used to record Clearances will be in accordance with Clearances procedures.

Operating Log Book (Eng Form 2198) Procedures (Continued)

9. Operating Log Book entries should include but not be limited to the following:

   a. Closing or opening of all power circuit breakers.
   b. Starting, stopping, and idling of generator prime movers.
   c. Performance of pre-operational and post-operational checks.
   d. All plant equipment malfunctions and actions taken to correct conditions or maintain the plant in a safe operating condition.
   e. Completion of all scheduled and unscheduled maintenance with a "note" to refer to the equipment maintenance log for details.
   f. Issuance and/ or release of all caution and clearance orders affecting plant/unit equipment.
   g. Any significant load changes. (25% of plant capacity or greater)
   h. Any temporary release of a clearance order.

10. An initial entry by each shift, which will include, but not be limited to the following:

   a. Assumption of shift duties.
   b. Plant/unit condition (standby-on line, dead lined etc.)
   c. All active Caution and/or Clearance Orders pertaining to the plant being operated.
   d. Prime mover hours and generator hours if applicable.
   e. Present kWh.
   f. Circuit breaker operations.
   g. Battery Charge rate.

11. An initial entry by each shift, which will include, but not be limited to the following:

   a. Substation Circuit Breaker status.
   b. Ambient Temperature.

12. At the end of the operating shift entries will consist of the following:

   a. Total fuel added.
   b. Oil added to each prime mover.
   c. Coolant added to each prime mover.
   d. The plant/mission supervisor will initial at the end of a 24-hour period to indicate that the log entries have been read and he is aware of all entries made during the 24-hour period.

13. The Log Book will not be used for indicating troubleshooting procedures but merely to indicate that a deficiency or inconsistency exists in the unit. The nature of the problem encountered will be stated but should reference the maintenance logs for a complete and detailed description of the troubleshooting procedures and corrective actions taken to correct the deficiency or inconsistency.

Risk Assessment

Risk management is the process of determining and analyzing risks involved in an operation, determining possible means of reducing risk, and leading in a manner to minimize the effect of risks. The process is thus: Receive Mission -- Perform Risk Analysis -- Determine Ways to Reduce Risk -- Implement Risk Reduction Measures -- Identify Non-reducible Risk -- Supervise Operations to Minimize Risk Effect. This is a continuous process, done throughout the execution of an operation.

Risk analysis is one part of the risk management processes. Risk analysis is a tool for determining the probable risk of an operation and comparing it to the risk level of other courses of action. After risk analysis is completed, methods of reducing or controlling risks and hazards must be analyzed and implemented.

Risk analysis is done using the following set of matrices:

NATURE OF OPERATION

Operational Length	Operational Area		Suspected Hazard or Unknown Conditions
	Local Area	*Tactical*	
72 Hrs	3	4	5
48 Hrs	2	3	4
24 Hrs	*1	2	3

FIRST LINE SUPERVISION

Command and Control	Nature of Mission		
	Support/ Non-tactical	*Day Tactical*	Night Tactical
Ad Hoc (Hey You)	3	4	5
Attached	2	3	4
Organic	*1	2	3

LEADER REST AND PREP TIME

Leader Rest	Prep Time		
	In Depth	*Adequate*	Minimal
< 4 Hours	3	4	5
6 Hours	2	3	4
8 Hours	*1	2	3

OPERATOR SELECTION

Task	Soldier Experience		
	Qualified and Experienced	Qualified but not Experienced	OJT
Complex	3	4	5
Routine	*2	3	4
Simple	1	2	3

OPERATOR ALERTNESS

Operating Environment	Length of Rest		
	Optimum - 8 Hrs	Adequate - 6 Hrs	Minimal - 4 Hrs
Tactical	2	3	4
Garrison	*1	2	3

EQUIPMENT STATUS

Equipment Age	Maintenance Status			
	FMC -- C1	C2	C3	NMC -- C4
Old	3	4	5	5
Average	*2	3	4	5
New	1	2	3	5

WEATHER AND ENVIRONMENT

Temperature	Visibility/ Moisture		
	Day/ Clear/ Dry	Limited Vis/ Hazy/ Drizzle	Night/ Dust/ Fog/ Snow/ Mud/ Rain/ Ice
Extremely Cold or Hot	3	4	5
Moderate	1	*2	3

Total the score and compare to graph at the bottom. A value of 12 to 23 requires caution and complete supervisory involvement. High risk, above 23, requires coordination with the next higher level of supervision before executing the mission, an evaluation of why this high risk of training must be done, and a plan for how to reduce the risk of accident or injury. When two or more risk factors are 5, the overall rating is high risk.

RISK ASSESSMENT

2	4	6	8	10	12	14	16	18	20	22	24	26
	28	30										
		LOW					MEDIUM					HIGH

15 -- Medium Risk

The analysis for this operation is 15 points, a Medium risk. The task is familiar to the operators, prep time has been adequate, sufficient rest is available, the equipment is in good condition, and organizational leadership is present on the mission.

ANNEX E (MAINTENANCE) APPENDIX 2 (COOLANT SYSTEM FLUSH PROCEDURES) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

1. General.

The following procedure is prescribed by TB 750-651, 3 January 1997'9, Cummins Pacific and Cummins Chesapeake Technical Representatives. All water cooled equipment will retain antifreeze (MIL-A-46153) for as long the coolant meets the freezing point requirement and reserve alkalinity requirements stated in TB 750-651 par 6. Generator Set cooling systems will be flushed at the time of engine overhaul or re-build.

2. Antifreeze Protection.

a. Maintain a 60% - 40% antifreeze (MIL-A-46153) and water mixture in cooling systems even in areas where temperatures never get down below freezing. A 60% - 40% mixture not only protects against freezing down to -50 degrees, but is a far better coolant than plain water when operating in hot climates.

b. Use a 60% - 40% mixture of antifreeze/water to top off or to refill a cooling system that requires the addition of coolant for any reason.

3. Flushing Procedures.

a. Drain clean and flush any cooling system that is contaminated, despite coolant installation date.

b. Do not use engine cooling system cleaning compound (MIL-C-10597), or restore as a routine maintenance procedure each time antifreeze is added or drained from the cooling system. Use the compounds only when necessary to clean heavily rusted or partially clogged cooling systems.

c. If restore is used, fill the cooling system at the radiator with one part "Restore" to ten parts water. "Restore" is a bio-degradable cleaning liquid, available commercially or through Cummins.

d. Run the unit at no load until the cooling system temperature reaches 185 F (85 C). Once this temperature is obtained, continue to run the unit at no load for one to one and a half-hours.

e. Shut-down the unit and drain the system. Dilute the used mixture with two parts water and discard.

f. Fill the cooling system to maximum capacity with water only. Run the unit at no load until the cooling system temperature reaches 185 F and then for 30 additional minutes.

g. Shut-down the unit and drain the system. If the used water is not reasonable clear, repeat step "d."

h. Fill the cooling system with a 60/40 mix of coolant and water.

i. Recharge the system with DCA and test.

4. Recycling of Military Antifreeze (MIL-A 46153).

a. Recycling of used military antifreeze is now authorized and recommended. Recycling conserves resources, reduces the cost of new antifreeze, and reduces the cost and problems of used antifreeze disposal.

b. An Antifreeze Recycling Users Guide is available from The U.S. Army Tank-automotive and Armaments Command, Mobility Tech Center-Belvoir, at DSN 654-3720 or Commercial (703) 704-3720.

ANNEX E (MAINTENANCE) APPENDIX 3 (RELATED PUBLICATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

Related publications are sources of additional information. They are not required to understand this SOP.

ARMY REGULATION (AR)

AR 15-6 DATE: 11 MAY 88
TITLE : PROCEDURES FOR INVESTIGATING OFFICERS AND BOARDS OF OFFICERS

AR 20-1 DATE: 15 MAR 94
TITLE : INSPECTOR GENERAL ACTIVITIES AND PROCEDURES

AR 25-400-2 DATE: 26 FEB 93
TITLE : THE MODERN ARMY RECORDKEEPING SYSTEM (MARKS) THIS ITEM IS INCLUDED ON EM 0001

AR 55-29 DATE: 03 SEP 71
TITLE : MILITARY CONVOY OPERATIONS IN CONUS (REPRINTED W/BASIC INCLUDE C1)

AR 190-51 DATE: 30 SEP 93
TITLE : SECURITY OF UNCLASSIFIED ARMY PROPERTY (SENSITIVE AND NONSENSITIVE)

AR 220-1 DATE: 31 JUL 93
TITLE : UNIT STATUS REPORTING

AR 385-10 DATE: 23 MAY 88
TITLE : THE ARMY SAFETY PROGRAM

AR 385-30 DATE: 15 SEP 83
TITLE : SAFETY COLOR CODE MARKINGS AND SIGNS

AR 385-40 DATE: 01 NOV 94
TITLE : ACCIDENT REPORTING AND RECORDS

AR 385-55 DATE: 12 MAR 87
TITLE : PREVENTION OF MOTOR VEHICLE ACCIDENTS

AR 600-55 DATE: 31 DEC 93
TITLE : THE ARMY DRIVER AND OPERATOR STANDARDIZATION PROGRAM (SELECTION, TRAINING, TESTING, AND LICENSING)

AR 672-5-1 DATE: 12 APR 84
TITLE : MILITARY AWARDS (REPRINTED W/BASIC INCL C1-15)

AR 700-5 DATE: 16 DEC 85
TITLE : TOTAL LOGISTICS READINESS/SUSTAINABILITY (TLR/S) ANALYSIS

AR 700-55 DATE: 05 MAY 70
TITLE : ARMY ADOPTED/OTHER SELECTED ITEMS AND LIST OF REPORTABLE ITEMS (SB 700-20) AND LINE ITEM NUMBERING SYSTEM

AR 700-138 DATE: 16 JUN 93
TITLE : ARMY LOGISTICS READINESS AND SUSTAINABILITY

ANNEX E (MAINTENANCE) APPENDIX 3 (RELATED PUBLICATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

REFERENCE-1

AR 710-2 DATE: 31 JAN 92
TITLE : INVENTORY MANAGEMENT SUPPLY POLICY BELOW THE WHOLESALE LEVEL (REPRINTED W/BASIC INCL C1) THIS ITEM IS INCLUDED ON EM 0001

AR 710-10 DATE: 07 JUL 77
TITLE : HARD TARGETS FOR TESTING AND RANGE USE (RCS CSGLD-1783)

AR 735-11 DATE: 01 MAY 85
TITLE : ACCOUNTING FOR LOST, DAMAGED, AND DESTROYED PROPERTY (REPRINTED W/BASIC INCL C1-3)

AR 750-1 DATE: 01 AUG 94
TITLE : ARMY MATERIEL MAINTENANCE POLICY AND RETAIL MAINTENANCE OPERATIONS THIS ITEM IS INCLUDED ON EM 0001

AR 750-25 DATE: 01 SEP 83
TITLE : ARMY TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE) CALIBRATION AND REPAIR SUPPORT PROGRAM

CTA

CTA 50-900 DATE: 01 SEP 94
TITLE : CLOTHING AND INDIVIDUAL EQUIPMENT

DA PAMS

PAM 25-400-2 DATE: 01 JAN 87
TITLE : MODERN ARMY RECORDKEEPING SYSTEM (MARKS) FOR TOE AND CERTAIN OTHER UNITS OF THE ARMY
PUB/FORM NUMBER: PAM 710-2-1 PUB/FORM DATE: 01JAN82
PUB/FORM TITLE : USING UNIT SUPPLY SYSTEM (MANUAL PROCEDURES) (REPRINTED W/ BASIC INCL C1-13)
PAM 710-2-1 DATE: 01 JAN 82
TITLE : USING UNIT SUPPLY SYSTEM (MANUAL PROCEDURES) (REPRINTED W/ BASIC INCL C1-13)

PAM 750-1 DATE: 15 FEB 94
TITLE : LEADER'S UNIT LEVEL MAINTENANCE HANDBOOK

PAM 738-751 DATE: 15 JUN 92
TITLE : FUNCTIONAL USERS MANUAL FOR THE ARMY MAINTENANCE MANAGEMENT SYSTEM- AVIATION (TAMMS-A)

PAM 750-35 DATE: 01 AUG 94
TITLE : GUIDE FOR MOTOR POOL OPERATIONS

ANNEX E (MAINTENANCE) APPENDIX 3 (RELATED PUBLICATIONS) TO THE UTILITY MONITORING AND CONTROL SYSTEMS (UMCS) SOP

FIELD MANUAL (FM)

FM 5-36 DATE: 10 MAY 85
TITLE : ROUTE RECONNAISSANCE AND CLASSIFICATION

FM 19-30 DATE: 01 MAR 79
TITLE : PHYSICAL SECURITY

FM 21-17 DATE: 11 DEC 81
TITLE : DRIVER SELECTION, TRAINING AND SUPERVISION, TRACK COMBAT VEHICLES

FM 21-305 DATE: 27 AUG 93
TITLE : MANUAL FOR THE WHEELED VEHICLE DRIVER {AFMAN 24-306}

FM 21-306 DATE: 15 APR 83
TITLE : MANUAL FOR THE TRACK COMBAT VEHICLE DRIVER

FM 29-2 DATE: 17 JUL 84
TITLE : ORGANIZATIONAL MAINTENANCE OPERATIONS

FM 43-1(TEST) DATE: 10 OCT 80
TITLE : ORGANIZATIONAL MAINTENANCE MANAGER'S GUIDE

FM 43-1-1(TEST) DATE: 10 OCT 80
TITLE : ORGANIZATIONAL MAINTENANCE MANAGER'S GUIDE - INDICATOR LISTS

FM 43-5 DATE: 28 SEP 88
TITLE : UNIT MAINTENANCE OPERATIONS

FM 55-30 DATE: 14 MAR 80
TITLE : ARMY MOTOR TRANSPORT UNITS AND OPERATIONS (REPRINTED W/BASIC INCL C1-3)

FM 55-312 DATE: 03 APR 91
TITLE : MILITARY CONVOY OPERATIONS IN THE CONTINENTAL UNITED STATES

SUPPLY BULLETIN (SB)

SB 700-20 DATE: 01 OCT 96
TITLE : ARMY ADOPTED/OTHER ITEMS SELECTED FOR AUTHORIZATION/LIST OF REPORTABLE ITEMS (S&I, USAMC LOGSA, ATTN: AMXLS-LC, REDSTONE ARSENAL, AL 35898-7466) THIS ITEM IS LISTED ON EM 0002

SB 700-20 DATE: 01 MAR 95
TITLE : ARMY ADOPTED/OTHER ITEMS SELECTED FOR AUTHORIZATION/LIST OF REPORTABLE ITEMS (48X MICROFICHE)

TECHNICAL BULLETIN (TB)

TB 43-0142 DATE: 28 FEB 97
TITLE : SAFETY INSPECTION AND TESTING OF LIFTING DEVICES

TB 43-0209 DATE: 31 OCT 90
TITLE : COLOR, MARKING AND CAMOUFLAGE PAINTING OF MILITARY VEHICLES, CONSTRUCTION EQUIPMENT, AND MATERIALS HANDLING EQUIPMENT (REPRINTED W/BASIC INCL C1)

TB 750-25 DATE: 15 NOV 96
TITLE : MAINTENANCE OF SUPPLIES AND EQUIPMENT: ARMY TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE) CALIBRATION AND REPAIR SUPPORT (C&RS) PROGRAM

REFERENCE-3

TECHNICAL MANUAL (TM)

TM 5-6115-622-12 DATE: 11 JAN 90 W/CHANGE 2 25 SEP 96
TITLE: OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL FOR GENERATOR SET, DIESEL ENGINE-DRIVEN, WHEEL-MOUNTED 750-KW, 3 PHASE, 4-WIRE, 2200/3800 AND 2400/4160 VOLTS (DOD MIODEL MEP-012A) CLASS PRIME UTILITY HZ 50/60 (NSN 6115-143-3850)

TM 5-6115-622-34 DATE: 15 DEC 87 W/CHANGE 4 25 SEP 96
TITLE: INTERMEDIATE (FIELD), (DIRECT AND GENERAL SUPPORT) AND DEPOT LEVEL MAINTENANCE MANUAL GENERATOR SET, DIESEL ENGINE-DRIVEN, WHEEL MOUNTED 750-KW, 3 PHASE, 4-WIRE, 2200/3800 AND 2400/4160 VOLTS (DOD MIODEL MEP-012A) CLASS PRIME UTILITY HZ 50/60 (NSN 6115-143-3850)

TM 5-6115-622-24P DATE: 1 JUL 88 W/CHANGE 7 25 SEP 96
TITLE: ORGNIZATIONAL, INTERMEDIATE (FIELD) DIRECT SUPPORT AND GENERAL SUPPORT) AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LSIT FOR GENERATOR SET, DIESEL ENGINE-DRIVEN, WHEEL-MOUNTED 750-KW, 3 PHASE, 4-WIRE, 2200/3800 AND 2400/4160 VOLTS (DOD MIODEL MEP-012A) CLASS PRIME UTILITY HZ 50/60 (NSN 6115-143-3850)

TM 9-237 DATE: 29 OCT 76
TITLE : OPERATOR'S MANUAL FOR WELDING THEORY AND APPLICATION

TM 9-243 DATE: 12 DEC 83
TITLE : USE AND CARE OF HAND TOOLS AND MEASURING TOOLS {M6290-AJ-MAN-010; TO 32-1-101; TM-10209-10/1} (REPRINTED W/BASIC INCLUDE C1-2)

TM 9-2610-200-24 DATE: 01 FEB 85
TITLE : ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT CARE, MAINTENANCE AND REPAIR OF PNEUMATIC TIRES AND INNER TUBES

TM 9-6115-604-12 DATE: 31 AUG 95
TITLE : OPERATOR AND UNIT MAINTENANCE MANUAL FOR GENERATOR SET,

DIESEL ENGINE DRIVEN, AIR TRANSORTABLE SKID MTD, 750 KW, 3 PHASE, 4 WIRE, 2400/4160 AND 2200/3800 V (DOD MODEL MEP 208A) CLASS PRIME UTILITY, HZ 50/60 (NSN 6115-00-450-5881) {NAVFAC P-8-633-12}

TM 9-6115-604-34 DATE: 30 AUG 96
TITLE : DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT LEVEL MAINTENANCE MANUAL FOR GENERATOR SET, DIESEL ENGINE DRIVEN, AIR TRANSPORTABLE SKID MTD, 750 KW, 3 PHASE, 4 WIRE, 2400/4160 AND 2200/3800 VOLTS DOD MODEL MEP 208A PRIME UTILITY CLASS 50/60 HERTZ (NSN 6115-00-450-5881) {NAVFAC P-8-633-34}

REFERENCE-4

TM 9-6115-604-24P DATE: 28 APR 95
TITLE : UNIT, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR GENERATOR SET, DIESEL ENGINE DRIVEN, AIR TRANSPORTABLE SKID MOUNTED, 750KW, 3 PHASE, 4 WIRE, 2400/4160, AND 2200/3800 VOLTS DOD MODEL MEP208A PRIME UTILITY CLASS 50/60 HERTS (NSN 6115-00-450-5881) DOD MODEL 80-1466 REMOTE CONTROL MODULE CLASS (6115-01-150-5284) DOD MODEL 80-7320 SITE REQUIREMENTS MODULE CLASS (6115-01-150-5285) {NAVFAC P-8-633-24P}

TM 38-L32-11 DATE: 01 JUN 89
TITLE : FUNCTIONAL USERS MANUAL FOR DIRECT SUPPORT UNIT STANDARD SUPPLY SYSTEM (DS4); CUSTOMER (USER) PROCEDURES (DIVISIONAL AND NONDIVISIONAL) (S&I CDR, USAISS-DCL, ATTN: CAL, 3901 C AVENUE, SUITE 102, FORT LEE, VA 23801)

2

DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER ARMY MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

MCHF-DPCS-CMS (40-5e) 31 Mar 00

MEMORANDUM FOR Chief, DPW COL Debow, ATTN: DPW,PWD,FAC ENG BR,/UMCS Supervisor (Mr. Pavliscsak), USASC&FG, Fort Gordon, GA 30905-5000

SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

1. Reference: 29 Code of Federal Regulation parts 1900 to 1910, Mar 00, Occupational Safety and Health Administration (OSHA) Standards, Department of Labor.

2. On 6 Mar 00, at the request of Mr. John Pavliscsak, William Jordan of Industrial Hygiene (IH) Section, in conjunction with Mr. Russ Blandin of Post Safety completed a review of the subject operation.

3. These findings are noted:

The operation's activities were roughly divided into three groups of tasks: a. Computer Operation and Shop Stock; b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop; c. Generator operations and maintenance. There are 9 workers at this activity, all with the same basic job functions.

a. Computer Operations and Stock Shop: consist of viewing CRT screens that indicate the Installation's power consumption, and the stocking of incoming supplies and equipment. The potential hazard in this section includes ergonomic issues and possible falling objects during stocking duties.

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop: Hazards and associated controls were listed in the presurvey and were evaluated. Listed hazards needing additional controls included vision, hearing, hot surfaces, and chemicals. Additional hazards noted during the survey included steam and limited soldering.

c. Operations and Operator maintenance: Consist of 1500 kW generators powered by 12 cylinder diesel motors. Some exposures were already identified and controlled however additional hearing and chemical controls were needed.

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

4. Recommendation(s):

a. Computer Operations and Stock Shop: None

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly repair shop:

(1). HAZCOM: Complete a chemical inventory of all the cleaners, chemicals, paints, etc. used and obtain associated Material Safety Data Sheets (MSDS). MSDS are available from this Section and/or the supplier. Coordinate HAZCOM training for personnel with Post Safety.

(2). Eye Protection: Keep the emergency eyewash master valve turned on. Flush weekly and document. Obtain chemical splash and impact safety goggles.

(3). Hand and Foot protection: Provide work gloves for metal and material handling. Provide correctly sized chemical protective gloves. Safety shoes must be steel toed and meet ANSI standards for slip resistance and electrical protection.

(4). Hearing Protection: Replace ear muffs and coordinate medical surveillance update (hearing exams) with Occupational Health Section.

c. Generator operations and maintenance (8th Ave Area):

(1). Provide adequate handwashing and hygienic facilities because of exposures to chemicals, oil and fuel.

(2). Insure the eye lavage and shower apparatus is checked at least weekly and documented.

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

(3). Replace the unserviceable earmuffs, obtain disposable foam earplugs, chemical resistant gloves and heavy work gloves.

(4). Update the chemical inventory (including the Material Safety Data Sheets) for this site as stated for the repair shop above.

5. Results of Post Safety review is provided under separate report. See enclosure.

6. Point of contact is Mr. George S. Pruiett, Industrial Hygienist at 787-1214.

ENCL

ERIC L. DOANE
COL, MC
Chief, Community Medicine Service

CF:
Post Safety
CMS-OH

S: 25 Apr 00

ATZH-PSB (385-10)

10 Mar 00

MEMORANDUM FOR Directorate of Pubic Works

SUBJECT: Special Standard Army Safety and Occupational Health Inspection of Energy Management Section, Directorate of Public Works

1. References:

a. E-mail note dated 2 Mar 00, SUBJECT: Request for Worksite Update

b. 29 CFR 1910, OSHA General Industry Standards

2. On 6 Mar 00, a Standard Army Safety and Occupational Health Inspection of the Energy Management Section, DPW was conducted by Russ Blandin, Safety and Occupational Health Specialist, Signal Branch Safety, Directorate of Public Safety. Was accompanied on the inspection by the section chief James Pavliscsak and William Jordan, Industrial Hygiene Technician, Community Medicine Service, DDEAMC.

3. A Risk Assessment Code (RAC) has been assigned to each deficiency to determine the degree of risk. Hazards should be abated expeditiously on a worst first basis beginning with a I, Imminent Danger to Life and Health (IDLH), and proceeding down to a IV, negligible.

4. The following deficiencies were noted:

a. Building 14600:

(1) Material Safety Data Sheets (MSDS) not on hand for hazardous chemicals used in the maintenance shop. Reference: 29 CFR 1910.1200. Ensure all personnel who use these hazardous chemicals are in full compliance with the standard, including: Employee training, a complete hazardous chemical inventory, an MSDS on hand in the workplace for each chemical and a written program. RAC III

(2) Fire extinguisher missing in maintenance shop. Reference: 29 CFR 1910.157(c)(4) Corrective action: Replace fire extinguisher. RAC III

(3) Personal protective equipment, eye/face shield not provided for employees use at bench grinder. Reference: 29 CFR 1910.133. Corrective action: All PPE must be provided to all employees when required. Recommend installing sign at machine to remind employees to use PPE when operating equipment. RAC III

(4) Guards missing and tool rests not properly adjusted on bench grinder in maintenance shop. Reference: 29 CFR 1910.215. Corrective action: Replace guards and properly adjust tool rests. RAC III

(5) Eyewash in kitchen area inoperable due to a pipe leak. Reference: 29 DFC 1910.151. Have eyewash pipe leak repaired and flush system weekly for several minutes. RAC III

(6) Lighting inadequate over workbench in maintenance shop. Corrective action: Install additional lighting at workbench. RAC III

(7) Ventilation inadequate in maintenance shop during peak maintenance operations involving spray-painting, etc. Ceiling-mounted exhaust fan is thermostatically controlled and failed to operate when attempt was made. Recommend spray painting be performed outdoors and switch installed on exhaust fan. RAC III

(8) Safety SOPs not established for key operations. Reference: AR 385-10 2-2(b). Corrective action: Establish/update SOPs that encompasses all operations, i.e., Lockout/Tag out, HAZCOM, Heat Injury Prevention, Working Around Moving Equipment, etc. RAC III

b. Generator Plant: Area off of 8th Avenue was inoperable and is undergoing major renovation that is scheduled for completion in a few months. Employees are exposed to multiple hazards in this area including: high heat; confined workspaces; high noise levels/vibration; maintenance operations; exhaust fumes; and bulk storage of fuels/oils. Would like to further evaluate working conditions once renovations are complete and normal operations are underway.

ATZH-PSB
SUBJECT: Standard Army Safe and Occupational Health Inspection of Energy Management Section, DPW

5. Request all corrective actions taken to abate deficiencies identified during the safety inspection (i.e., service and/or work order numbers, self help projects, etc.) and target date for correction be provided to this office as soon as possible or no later than date indicated on first page.

6. POC for this action is Russ Blandin at extension 791-7233.

for Russell S. Blandin
STEVEN C. BUZHARDT
C, Signal Safety Division
Directorate of Public Safety

CF:
DPS
GC

– Copy –

Pruiett, George S EAMC

To: Pavliscsak, James V.; Pruiett, George S EAMC; Blandin, Russell S.; Jordan, William R EAMC

Subject: RE: Risk Assessment

Date: 8 Aug 00

1. Mr. Pavlicsack, I completed a risk assessment on 7 Aug 00 in reference to Ms. Reed's work environment concern (EMS Generator personnel exposure to ambient heat without adequate environmental control). Based on three separate worksite visit to the diesel powered generators worksite to include the 7 Aug 00 heat assessment, there appears to be no change in the tasks personnel perform:

a. The work tasks do expose personnel to ambient heat that is in excess of 95 degrees F.

b. Every hour on the hour EMS personnel perform a series a checks on the diesel generators which last approximately five minutes per generator.

c. Currently only six generators are operated at a given time with the potential to operate nine in the future.

d. The work tasks are consider moderate and do not require excessive physical exertion on the part of the operators. When personnel are not performing checks on the generators, three air conditioned areas (Tool/Storage Building and two van) are immediately accessible to them away from the excessive ambient heat. The temperature in the Tool/Storage building averaged 73F and in Van # 60183 it was 81F (it appeared that the ventilation system had been recently turned on). The air conditioner in the second Van was not operating due to a maintenance problem. A work order to fix/repair unit had been initiated according Mr. Pavliscsak.

e. Water was available to EMS personnel.

Conclusion. Controlled relief form ambient heat is available and adequate if air conditioning system/unit are maintained. Recommend you set the air conditioners at the generator area to operate on demand via thermostat.

Additionally, the use of appropriate personal protective equipment (chemical splash goggle and tyvex coveralls) for the battery maintenance (replenishing & filling batteries with water)tasks is a concern for EMS personnel. Recommend the purchase and use of chemical splash goggles and aprons for this task. Due to the excessive ambient heat, the use of Tyvex coveralls is not recommended. They may increase body heat load.

4. POC is George S. Pruiett - Industrial Hygienist at 787-1214.

-----Original Message-----
From: Pavliscsak, James V. [mailto:pavliscj@gordon.army.mil]
Sent: Tuesday, August 01, 2000 7:56 AM
To: 'Pruiett, George S EAMC'; Blandin, Russell S.; Jordan, William R EAMC
Subject: RE: Risk Assessment

The forecast for this week looks good. It appears we will not run. If we do run I will contact you as planned.

> -----Original Message-----
> From: Pruiett, George S EAMC [SMTP:George.Pruiett@se.amedd.army.mil]
> Sent: Friday, 28 July, 2000 2:58 PM
> To: Pruiett, George S EAMC; Blandin, Russell S.; Jordan, William R EAMC
> Cc: Pavliscsak, James V.
> Subject: RE: Risk Assesment
>
> Date: 28 Jul 00

> Coordinated the evaluation of EMS/Generator site for indoor heat concerns
> identified by Ms. Reed. Due to the fact the generators are not ran on a
> regular schedule, Mr. Pavlisack will page me (Mr. Pruiett) by dialing
> "30122" or Mr. Jordan at "30314" on the day(s) of next generator run (Run
> times are controlled by GA Power). George Pruiett @ 787-1214.

> -----Original Message-----
> From: Pruiett, George S EAMC
> Sent: Monday, July 17, 2000 11:21 AM
> To: 'Blandin, Russell S.'; Pruiett, George S EAMC; Jordan, William R
> EAMC
> Cc: James Pavlisack (E-mail)
> Subject: RE: Risk Assesment
>
>
> A copy of this request is being provided to Ms. Reed's supervisor (Mr.
> Pavlisack) to alert him to his employee's concern. Please advise Ms. Reed
> that the Industrial Hygiene (IH) Section will coordinate a worksite
> evaluation to address noted concern. We will review the potential
> health/safety risk. Concerns such as "over time and duration of work
> shifts" must be addressed via the supervisor with guidance from MER (CPO)
> and Local Union if applicable. Thanks, George S. Pruiett - Industrial
> Hygienist at 787-1214.
> -----Original Message-----
> From: Blandin, Russell S. [mailto:blandinr@gordon.army.mil]
> Sent: Monday, July 17, 2000 10:48 AM
> To: George Pruiett; William Jordan
> Subject: FW: Risk Assesment
>
>

eorge/William: FYI and assistance

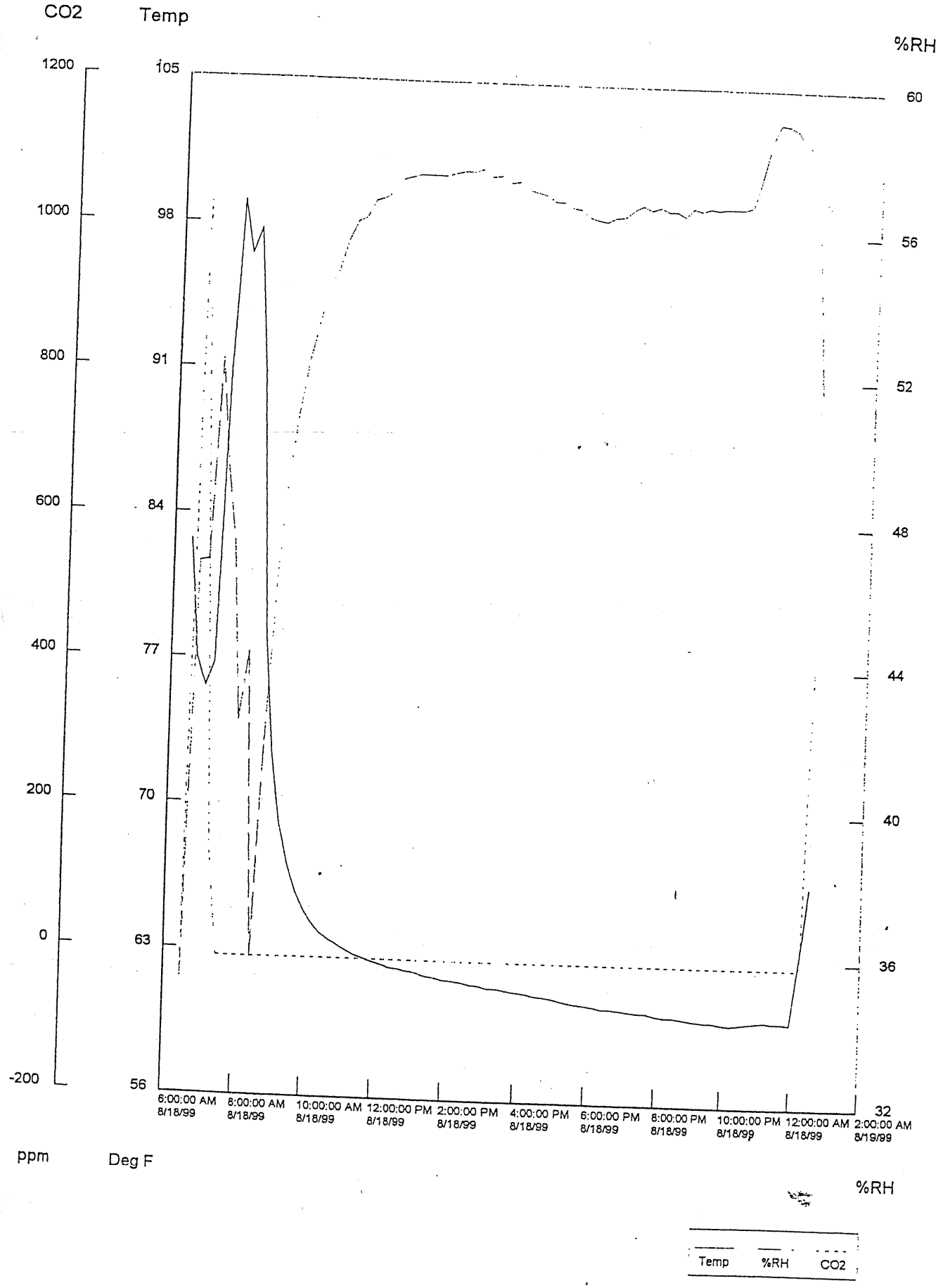
anks,

>
> > ---------
> > From: Brenda Reed[SMTP:brenreed@knology.net]
> > Sent: Monday, July 17, 2000 10:29 AM
> > To: Blandin, Russell S.
> > Cc: Houpt, John F.; fullbrr@gordon.army.mil; Griffin, Gordon D.;
> Poston,
> > Charles F.
> > Subject: Rick Assesment
> >
> > Mr. Blandin,
> >
> > I spoke with Mr. Houpt this morning, concerning health and safety issues
> > at the power plant located next to 25910. We would like your help in
> > doing a risk assessment. For the past 5 years we had a shift from noon
> > until 2000hrs. This shift was to check prices from Ga. Power hourly and
> > to relieve an operator from the plant as needed. If the generators ran
> > past 2000hrs this person stayed on for the duration. This year that
> shift
> > has been eliminated. Today the plant has to be on line at 1100hrs,
> > meaning that one of the two operators will work at least a 12hr shift
> with
> > no possible relief from the heat. We have been told to use the
r-conditioning that was provided us in the control vans. The
mperature in the control van with 3 tons of air-conditioning is over
0

> > degrees. Not a lot of help. Our ages run from 45 to 54 years old.
> > Thankyou for any help you can give us, and please let us know what you
> > need us to do.
> >
> > My email address at work is:reedb@gordon.army.mil
> > work phone is 791-6423/pwr plant 791-8379 home phone is 364-4516

Brenda
> >

FT.GORDON/IH DPW/EMS14600



DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER army MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

MCHF-DCMS-IH (40-5e)

20 Nov 00

MEMORANDUM FOR Directorate of Public Works (DPW), ATTN: Public Works Division, Facility Management Branch - Energy Management Section (EMS) (Mr.Pavliscsak),USASC&FG, Fort Gordon, GA 30905-5000

SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

1. Authority:

a. AR 40-5, 15 Oct 90, The Army Preventive Medicine Program.

b. DA PAM 40-503, Jan 98, the Army Industrial Hygiene Program.

2. References:

a. Department of Army Pamphlet (DA PAM) 40-502 - Hearing Conservation, 27 August 1991.

b. Technical Guidance (TG) 181, Noise Dosimetry and Risk Assessment, August 1999.

c. 29 Code of Federal Regulations 1910.95, Oct 2000 Occupational Safety and Health Administration (OSHA) Standards, Occupational Noise Exposure.

3. On 4 Oct 00, the Department of Community Medicine Service - Industrial Hygiene (IH) Section completed an updated survey of subject worksite in support of your Sep 00 request. The purpose of the re-survey was to update DA personnel noise hazard(s) exposure data and confirm appropriate type of Personal Protective Equipment (PPE) required to protect EMS personnel during operation/maintenance of electric generators.

4. Findings:

MCHF-DCMS-IH (40-5e) 20 Nov 00
SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

a. Results of noise hazard survey confirm that EMS personnel are exposed to noise levels (equal to and/or greater than 85 decibels Time Weighted Average (TWA)) which require them to be placed in a Hearing Conservation Medical Surveillance Program in accordance with reference (2b) above. See Enclosure, Table A, Noise Hazard Data, Time Weighted Average, EMS - Generator Plant.

b. Results of noise hazard survey confirm that EMS personnel are exposed to noise levels considered to be "noise hazardous" (equal to and/or greater than 85 decibels, non time weighted average (non TWA)) in accordance with reference (2a) above and required the use of PPE. See Enclosure, Table B, Noise Hazard Data, Non-Time Weighted Average, EMS - Generator Plant.

5. Recommendations:

a. Coordinate with the Occupational Health Clinic (OHC) to ensure all EMS personnel are enrolled in local Hearing Conservation Program.

b. Procure and require EMS personnel to use earmuffs and/or plugs as PPE when performing operation/maintenance tasks at subject location. PPE must be have a Noise reduction rating (NRR) of at least 24 decibels. The goal is to reduce the highest exposure measured (108 dB(A)) to less than 85dB(A). This can be accomplished with either earplugs or noise muffs. See Enclosure. Keep all PPE's clean, sanitary, and serviceable.

6. Point of contact is Mr. George S. Pruiett, Industrial Hygienist at 787-1214.

Encl

ERIC L. DOANE
COL, MC
Chief, Community Medicine Service

CF:
Post Safety

MCHF-DPCS-CMS (40-5e)
SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

20 Nov 00

TABLE A, Noise Hazard Data, Time Weighted Average (TWA), EMS - Generator Plant

Sample Location\ Person	Sample Instrument	TIME	LEQ	Actual TWA	DA Standard
Office Area (Shed)	JT0110102 (Quest)	1hr 5min	84 dB(A)	75 dB(A)	85 dB(A)
Cool Area 60183	JT0110109 (Quest)	1hr 7min	76 dB(A)	67db(A)	85 dB(A)
Mr. Neal Skvarca (routine work area)	JT0110105 (Quest)	1hr 4min	101 dB(A)	92 dB(A)	85 dB(A)
Mr. William Ellis (routine work area)	JT0110101 (Quest)	1hr 7min	100 dB(A)	91 dB(A)	85 dB(A)

NOTE: LEQ - is the average sound level exposure measured over a representative portion of time (less than 8.0 hours exposure). Actual TWA (Time Weighted Average) - Measured exposure over 8.0 hour workday. Department of Army Standard (DA) of 85 dB(A) - TWA (8.0 hr) exposure criteria for enrollment of DA personnel into Medical Surveillance Program. In accordance with DA Noise Exposure criteria, the use of hearing protection as Personal Protective Equipment (PPE) is required for all noise exposures at/above 85dB(A) regardless of duration of exposure.

TABLE B, Noise Hazard Data, Non-Time Weighted Average (Non-TWA) - EMS, Generator Plant

Sample Location (Source)	Sample Instrument Number (Quest)	Non-TWA Exposure	DA Standard
Generator Unit #63488	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63511	HP7020006	108 dB(A)	85 dB(A)
Generator Unit #63502	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63425	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63483	HP7020006	105 dB(A)	85 dB(A)
Generator Unit #63487	HP7020006	106 dB(A)	85 dB(A)

NOTE: In accordance with DA Noise Exposure criteria, the use of hearing protection as Personal Protective Equipment (PPE) is required for all noise exposures at/above 85dB(A) regardless of duration of exposure. Non-TWA Noise levels are direct measurements of specific noise sources or areas.

Filename: GenSite noise

HH

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SIGNAL CENTER
AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280

REPLY TO
ATTENTION OF:

JUL 17 2002

MEMORANDUM FOR WHOM IT MAY CONCERN

SUBJECT: Additional Information on UMCS Safety

1. I am writing this memorandum to provide additional information that may be helpful in evaluating the ongoing Office of Special Counsel Investigation regarding operations and safety at the UMCS.

2. **Safety Equipment**: The UMCS section was organized in 1987 and employees always had access to safety equipment. The procurement procedures were conducted by the UMCS section as there was no other means to accomplish this. All employees were empowered to purchase and receive at the post level with signature cards issued on my hand receipt. Physicals were conducted and prescription safety glasses were issued at EAMC. All safety items including prescription glasses were purchased by DPW. I reviewed each purchase and had only two problem areas. Both within the last 3 or 4 years. One was the purchase of safety footwear used on a limited basis or unsuitable for the job. When confronted with this problem I required that limited use footwear remain on the job site in the employee's locker. I refused to approve unsuitable footwear that employees requested because they wanted it for use off the job. They were told to reorder. The other problem was prescription safety glasses. Some employees attempted to order ultralight wire rim fashion glasses. I had prescriptions that were changed by employees and attempts to bypass normal approval by asking another division card holders to place the order. However, it came to light when the card holder requested purchase approval.

3. **Training**: Training was ongoing from day one --not only for employees but myself also. Only one employee had ever seen an InfoScan system before coming to work in the section. We never had a complaint until the people providing generator operators training bragged about the Army's schools and the "big money" that was available for Army trained technicians. I started getting request for 2-year generator and high voltage schools at Fort Belvoir. These request were turned down. I personally talked to soldiers involved in the operator training and civilians with the military's rail shop. I was assured that the UMCS operators had the training required to do the job. We also provided other training. For instance, the two employees currently working as inspectors at EPS at a higher pay rate (with the potential to go much higher) received their COR training at Fort Benning while in the UMCS section. We provided opportunities for additional training requested such as software programs, writing, etc.

4. **SOP's**: I found about 50 SOP's still on an old computer. They date back to 1988 and about 10 for the generators dating back to 1996. I no longer have many of the newer ones. They were turned over to the contractor when he took over but I noticed some still posted at the generator site less than a month ago. Procedures and guidelines were post in a book in the master control

room in addition generator related ones were posted at the generator site. All were updated as needed with pen and ink changes and retype periodically. There were also changes and instruction sent by email and kept in another book called Lessons Learned.

5. **Occupational Health**: Employees were part of the health screening and safety program here on post. When a question came up I went to them requesting the last 3 years in their records for employees. OSHA did not find any major problems and asked in the out briefing which was attended by all employees present including the Union representative. One of the major issues was footwear and OSHA said "although there was a delay in ordering because of policy clarifications no one was without safety footwear". He pointedly ask "isn't that true? Was anyone without safety shoes?" There was not one complaint from the employees or the Union President.

There have been questions about documentation going back before OSHA. There were numerous methods for documentation. However with the elimination of items on the 7B card, centralized record keeping, relocating, reduction of staffing, changes in 201 file record keeping and a constant state of flux I can not furnish complete documentation to you. I keep many records in my files at 2141 and 2133. These were left there for a period of time with me planning to go through them when time permitted. However someone went in the buildings and rifled all records, removed furniture items etc.

6. I can assure you that we did the right things and employees were my number 1 priority.

James V. Pavliscsak

JAMES V. PAVLISCSAK

P.1

TP2

Fullbright, Reuben R.

From: Fullbright, Reuben R.
Sent: Friday, September 15, 2000 9:21 AM
To: Pavliscsak, James V.
Cc: Fullbright, Reuben R.; Griffin, Gordon D.; Reed, Brenda L.
Subject: PR Acid Apron and Gloves

MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for: JJVA([operations)

END ITEM APPLICATION: BLDG # Power Plant

ITEM DESCRIPTION: Acid Apron 48 x 35 Green
QUANTITY: 3 Ea.
COST PER ITEM: $ 13.64
TOTAL COST: $40.92

VENDERS NAME: Grainger
VENDERS PART#: 4T294
VENDERS CATALOG #: 391
VENDERS PAGE#: 2549

VENDERS PH #: (706) 560-0808
VENDERS POC: Gloria

REQUISITIONER: Reuben Fullbright
DATE: 15 Sept 2000

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for: JJVA([operations)

END ITEM APPLICATION: BLDG # Power Plant

ITEM DESCRIPTION: Gloves Acid Elbow Length, Heavy Wt.
QUANTITY: 3 Pr.
COST PER ITEM: $ 9.11
TOTAL COST: $27.33

VENDERS NAME: Grainger
VENDERS PART#: 2AN06
VENDERS CATALOG #: 391
VENDERS PAGE#: 2522

VENDERS PH #: (706) 560-0808
VENDERS POC: Gloria

REQUISITIONER: Reuben Fullbright
DATE: 15 Sept 2000

P2

Fullbright, Reuben R.

From: Pavliscsak, James V.
Sent: Wednesday, August 30, 2000 2:05 PM
To: Griffin, Gordon D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: pr protective wear

disapproved - see me on this.

-----Original Message-----
From: Griffin, Gordon D.
Sent: Wednesday, 26 July, 2000 11:12 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: pr protective wear

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: (BATTERY FILLING AT POWER PLANT)

ITEM: COVERALL
QUANTITY: 32 EA
COST PER ITEM: 4.20
TOTAL COST: $ 134.40

ITEM DESCRIPTION: TYVER PROTECTIVE WEAR COVERALL(with elastic wrists/ankles)
MANUFACTURES NAME: N/A
MANUFACTURES PART#: N/A

VENDERS NAME: DIRECT SAFETY COMPANY
VENDERS ADDRESS: PO BOX 27648 TEMPE, ARIZONA 85285-7648

VENDERS PH#: 1-800-528-7405
VENDERS POC: N/A

VENDERS PART#: N05-938 SIZES 8 at 2X 8 at XL 8 at L 8 at M
VENDERS CATALOG#: MAY-AUGUST CAT. 2000
VENDERS PAGE#: 31

REQUISITIONER: GORDON GRIFFIN
DATE: 26 JULY 00

Q3

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Wednesday, August 30, 2000 2:04 PM
To: Griffin, Gordon D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: PR SPLASH PROTECTION

Disapproved - See me on this.

-----Original Message-----
From: Griffin, Gordon D.
Sent: Wednesday, 26 July, 2000 9:45 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: PR SPLASH PROTECTION

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: (BATTERY FILLING AT POWER PLANT)

ITEM: SPLASH PROTECTION
QUANTITY: 16 EA
COST PER ITEM: 6.20
TOTAL COST: $ 99.20

ITEM DESCRIPTION: TYVER QC SPLASH PROTECTION FOR ACID HANDLING
MANUFACTURES NAME: N/A
MANUFACTURES PART#: N/A

VENDERS NAME: DIRECT SAFETY COMPANY
VENDERS ADDRESS: PO BOX 27648 TEMPE, ARIZONA 85285-7648

VENDERS PH#: 1-800-528-7405
VENDERS POC: N/A

VENDERS PART#: N05-929 SIZES 4 at 2X 4 at XL 4 at L 4 at M
VENDERS CATALOG#: MAY-AUGUST CAT. 2000
VENDERS PAGE#: 33

REQUISITIONER: GORDON GRIFFIN
DATE: 26 JULY 00

94

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Wednesday, August 30, 2000 2:05 PM
To: Griffin, Gordon D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: pr protective wear

disapproved - see me on this.

-----Original Message-----
From: Griffin, Gordon D.
Sent: Wednesday, 26 July, 2000 11:12 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: pr protective wear

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: (BATTERY FILLING AT POWER PLANT)

ITEM: COVERALL
QUANTITY: 32 EA
COST PER ITEM. 4.20
TOTAL COST: $ 134.40

ITEM DESCRIPTION: TYVER PROTECTIVE WEAR COVERALL(with elastic wrists/ankles)
MANUFACTURES NAME: N/A
MANUFACTURES PART#: N/A

VENDERS NAME: DIRECT SAFETY COMPANY
VENDERS ADDRESS: PO BOX 27648 TEMPE, ARIZONA 85285-7648

VENDERS PH#: 1-800-528-7405
VENDERS POC: N/A

VENDERS PART#: N05-938 SIZES 8 at 2X 8 at XL 8 at L 8 at M
VENDERS CATALOG#: MAY-AUGUST CAT. 2000
VENDERS PAGE#: 31

REQUISITIONER: GORDON GRIFFIN
DATE: 26 JULY 00

85

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Friday, April 07, 2000 6:19 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Reschedule eye exams

All purchase request for safety glasses are canceled. Reschedule your eye exam and be sure your prescription meets the POLICY FOR SAFETY EYEGLASSES I sent you. Schedule your exam for hours when you are working.

96

Reed, Brenda T.

From: Pavliscsak, James V.
Sent: Friday, April 07, 2000 6:21 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: POLICY FOR SAFETY EYEGLASSES

1. Eye examinations are conducted every two years.

2. New eyeglasses if needed shall be purchased for [illegible]

07

avliscsak, James V. BR000405-012

From: Pavliscsak, James V.
Sent: Tuesday, 21 March, 2000 3:58 PM
To: Reed, Brenda L.
Subject: FW: PR safety glasses - POSTON

ok for purchase

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:19 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - POSTON

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:34 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - POSTON

Elaine,
Request approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:23 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - POSTON

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:03 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - POSTON

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

ITEM APPLICATION: BLDG# 14600 Operations

ITEM DESCRIPTION: safety glasses for Charles Poston

P8

QUANTITY: 1 ea.
COST PER ITEM: $ 229.00
TAL COST: $ 229.00

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavliscsak /791-6423
DATE: 21MAR00

89

Pavliscsak, James V. BR000405-011

From: Pavliscsak, James V.
Sent: Tuesday, 21 March, 2000 3:58 PM
To: Reed, Brenda L.
Subject: FW: PR safety glasses - RUSEK

ok for purchase

—Original Message—
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:19 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - RUSEK

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:31 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - RUSEK

ne,
equest approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:20 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - RUSEK

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:07 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - RUSEK

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

Request approval for IMPAC purchase and APC for:

END ITEM APPLICATION: BLDG# 14600 Operations

8 10

ITEM DESCRIPTION: safety glasses for Richard Rusek

QUANTITY: 1 ea.
COST PER ITEM: $ 227.50
TOTAL COST: $ 227.50

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavliscsak /791-6423
DATE: 21MAR00

Pavliscsak, James V.

BR000405-08

P11

From: Pavliscsak, James V.
Sent: Tuesday, 21 March, 2000 3:57 PM
To: Reed, Brenda L.
Subject: FW: PR safety glasses - SKVARCA

ok for purchase

---Original Message---
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:20 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - SKVARCA

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:31 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - SKVARCA

Elaine,
Request approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:21 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - SKVARCA

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:06 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - SKVARCA

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

Request approval for IMPAC purchase and APC for:

END ITEM APPLICATION: BLDG# 14600 Operations

P12

ITEM DESCRIPTION: safety glasses for Neal Skvarca

QUANTITY: 1 ea.
COST PER ITEM: $ 229.00
TOTAL COST: $ 229.00

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavlisosak /791-6423
DATE: 21MAR00

8 B

avliscsak, James V. BE000405-009

From: Pavliscsak, James V.
Sent: Tuesday, 21 March, 2000 3:57 PM
To: Reed, Brenda L.
Subject: FW: PR safety glasses - GRIFFIN

ok for purchase

---Original Message---
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:20 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - GRIFFIN

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:32 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - GRIFFIN

ne,
Request approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:22 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - GRIFFIN

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:05 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - GRIFFIN

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

equest approval for IMPAC purchase and APC for:

END ITEM APPLICATION: BLDG# 14600 Operations

ITEM DESCRIPTION: safety glasses for Gordon Griffin

814

QUANTITY: 1 ea.
COST PER ITEM: $ 202.00
TOTAL COST: $ 202.00

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavlisosak /791-6423
DATE: 21MAR00

0.15

Sims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, January 20, 1999 2:54 PM
To: Jones, Hugh S.
Subject: FW: PR Safety Glasses - Fullbright

Funding is available

From: Fullbright, Reuben R.
Sent: Tuesday, 19 January, 1999 12:16 PM
To: Pavliscsak, James V.
Cc: Fullbright, Reuben R.
Subject: PR Safety Glasses

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations),
END ITEM APPLICATION: Reuben Fullbright

ITEM: Safety Glasses
QUANTITY: 1
COST PER ITEM 72.78
TOTAL COST: $ 72.78

EM DESCRIPTION: Safety Glasses
MANUFACTURES NAME: UNICOR
MANUFACTURES PART#: Frame 016 Color Gunmetal Eye Size 56 Bridge Size15
Temple Length 140mm

VENDERS NAME: UNICOR
VENDERS ADDRESS: Federal Correctional Institution Box767 Butner, NC 27509-0767
VENDERS PH#: 1-919-575-2050

REQUISITIONER: Reuben
DATE: 18 JAN 99

P.16

ns, Gregory W.

I: Pavliscsak, James V.
Sent: Tuesday, January 19, 1999 8:11 AM
To: Jones, Hugh S.
Subject: FW: PR UNICOR Safety Glasses - Rusek

Funding is available

From: Rusek, Richard D.
Sent: Friday, 15 January, 1999 7:24 PM
To: Pavliscsak, James V.
Subject: PR UNICOR Safety Glasses - Rusek

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for: APC: JJVA(operations)

END ITEM APPLICATION: (Employee Safety)

ITEM: Glasses, Safety
QUANTITY: 1 ea
COST PER ITEM: $83.00
TOTAL COST: $83.00
ITEM DESCRIPTION: Safety Glasses, Polycarbonate lens ST 35, style PC1, Silicone Nose Pads, Cable Temples, Side Shields, Silver Color, Case.
VENDOR'S NAME: UNICOR
VENDOR'S PART #:
VENDOR'S PH#: (919) 575-2050
VENDOR'S POC: Debbie
Price verified by fax quotation received from UNICOR on 7 Jan 99.

REQUISITIONER: RICK RUSEK
DATE: 6 January 1999

P.17

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:37 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR Safety Glasses-Skvarca

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, November 24, 1998 8:17 AM
To: Pavliscsak, James V.
Subject: FW: PR Safety Glasses-Skvarca

Funding is available.

From: Newman, Doris E.
Sent: Tuesday, November 24, 1998 7:53 AM
To: Pavliscsak, James V.
Subject: FW: PR Safety Glasses-Skvarca

From: Jones, Hugh S.
Sent: Monday, November 23, 1998 5:07 PM
To: Newman, Doris E.
Subject: FW: PR Safety Glasses-Skvarca

Elaine, Request approved. Please validate funding and forward response to James Pavliscsak. APC: JJVA

From: Pavliscsak, James V.
Sent: Monday, November 23, 1998 12:37 PM
Jones, Hugh S.
ect: FW: PR Safety Glasses Skvarca

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA(operations)
END ITEM APPLICATION: (Safety Glasses for Neal Skvarca)

ITEM: Safety prescription glasses
ITEM DESCRIPTION: Prescription safety glasses
QUANTITY: 1 EA
COST PER ITEM: $ 73.00
TOTAL COST: $ 73.00

VENDERS NAME: UNICOR, Federal Prison Industries, Inc.
VENDERS ADDRESS: Box 767, Butner, North Carolina 27509-0767
VENDERS PH#: (919) 575-2050
VENDERS POC: Beverly

Note: A fax copy of prescription is at UNICOR, can call and give credit card number and they will fill the prescription.

REQUISITIONER: Reed/Skvarca
DATE: 23Nov98

0.18

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:37 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR boots - Poston

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, November 17, 1998 7:29 AM
To: Pavliscsak, James V.
Subject: FW: PR boots - Poston

Funding available

From: Jones, Hugh S.
Sent: Monday, November 16, 1998 4:30 PM
To: Newman, Doris E.
Subject: FW: PR boots

Elaine,
Request approved. Please validate funding availability and forward response to James Pavliscsak. APC: JJVA

From: Pavliscsak, James V.
Sent: Monday, November 16, 1998 3:58 PM
To: Jones, Hugh S.
Subject: FW: PR boots

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)
END ITEM APPLICATION:Personnel Safety

ITEM: Boots, work, w/oblique steel toe
QUANTITY: 1 PR
COST PER ITEM: $84.63
TOTAL COST: $84.63

ITEM DESCRIPTION: 6 inch steel-toed boot, oil resistant Size 8 1/2 D
MANUFACTURES NAME: Iron Age
MANUFACTURES PART#: 228

VENDERS NAME: Iron Age
VENDERS ADDRESS: 3240 Peach Orchard Road, Augusta, GA 30906
VENDERS PH#: 706.771.0666
VENDERS POC: Don Wright
VENDERS PART#: 228
VENDERS CATALOG#: 1998 Industrial Footware Catalog
VENDERS PAGE#: 49

QUISITIONER: Poston
TE: 13NOV98

0:19

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:14 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR SAFETY SHOES GRIFFIN

-----Original Message-----
From: Newman, Doris E.
Sent: Monday, October 26, 1998 8:07 AM
To: Pavliscsak, James V.
Subject: FW: PR SAFETY SHOES GRIFFIN

Funds are available
Forgot to approve this one with others.---------
From: Pavliscsak, James V.
Sent: Thursday, October 01, 1998 1:24 PM
To: Jones, Hugh S.
Subject: FW: PR SAFETY SHOES GRIFFIN

From: Griffin, Gordon D.
Sent: Thursday, 01 October, 1998 10:43 AM
To: Pavliscsak, James V.
Cc: Griffin, Gordon D.
Subject: FW: PR SAFETY SHOES GRIFFIN

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)
END ITEM APPLICATION: safety shoes

ITEM: safety shoes
QUANTITY: 1 pair
COST PER ITEM: 80.99
TOTAL COST: 80.99

ITEM DESCRIPTION: SPORTS HICKER SIZE 9 1\2 M
MANUFACTURES NAME: IRON AGE
MANUFACTURES PART#: 293

VENDERS NAME: IRON AGE SAFETY SHOES
VENDERS ADDRESS: 3240 PEACH ORCHID RD, AUGUSTA, GA 30906

VENDERS PH#: (706) 771-0666
VENDERS POC:

VENDERS PART#: 293
VENDERS CATALOG#: 1998
VENDERS PAGE#: 15

REQUISITIONER: Gordy Griffin
DATE: 1 OCT 98

920

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:12 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR Cloth Sales Coverall xl

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, August 18, 1998 5:47 AM
To: Pavliscsak, James V.
Subject: FW: PR Cloth Sales Coverall xl

Funds are available

From: Jones, Hugh S.
Sent: Monday, August 17, 1998 4:29 PM
To: Newman, Doris E.
Subject: FW: PR Cloth Sales Coverall xl

Elaine, Request approved. Please validate funding availability and forward response to James Pavliscsak. APC: JJVA

From: Pavliscsak, James V.
Sent: Friday, August 14, 1998 3:06 PM
To: Jones, Hugh S.
Subject: FW: PR Cloth Sales Coverall xl

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations),
END ITEM APPLICATION: (GenSite Operations)

ITEM: Coverall
QUANTITY: 1
COST PER ITEM: $26.55
TOTAL COST: $26.55

ITEM DESCRIPTION: Coverall Cotton Sateen Type 1
MANUFACTURES NAME: Lajas Industries
MANUFACTURES PART#: 8450-00-131-6510

VENDERS NAME: Clothing Sales
VENDERS ADDRESS: bldg 35203 Ft. Gordon, Ga
VENDERS PART#: 8450-00-131-6510

REQUISITIONER: James Pavliscsak
DATE: 14 Aug 98

P.21

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:11 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR Safety Shoes Ellis

FYI

-----Original Message-----
From: Newman, Doris E.
Sent: Monday, July 27, 1998 8:43 AM
To: Pavliscsak, James V.
Subject: FW: PR Safety Shoes Ellis

Funds are available
From: Jones, Hugh S.
Sent: Thursday, July 23, 1998 6:08 PM
To: Newman, Doris E.
Subject: FW: PR Safety Shoes Ellis
Elaine, Request approved. Please validate funding availability and forward response to James Pavliscsak. APC: JJVA
From: Pavliscsak, James V.
Sent: Thursday, July 23, 1998 2:00 PM
To: Jones, Hugh S.
Cc: Newman, Doris E.
Subject: FW: PR Safety Shoes Ellis
request increase from 64.61 to 103.74 - Total increase $ 39.13
From: Newman, Doris E.
Sent: Friday, 10 July, 1998 2:10 PM
To: Pavliscsak, James V.
Subject: FW: PR Safety Shoes Ellis
Funds are available
From: Jones, Hugh S.
Sent: Friday, July 10, 1998 1:15 PM
To: Newman, Doris E.
Subject: FW: PR Safety Shoes Ellis
Elaine, Request approved. Please validate funding availability and forward response to James Pavliscsak. APC: JJVA
From: Pavliscsak, James V.
Sent: Friday, July 10, 1998 12:50 PM
To: Jones, Hugh S.
Subject: FW: PR Safety Shoes Ellis

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations),
END ITEM APPLICATION: (WILLIAM ELLIS

ITEM: SAFETY SHOES SIZE 11R
QUANTITY: 1 PR.
COST PER ITEM: $ 103.74
TOTAL COST: $ 103.74

ITEM DESCRIPTION: 8" boot 11R
VENDERS NAME: IRON AGE
VENDERS ADDRESS: 3240 PEACH ORCHARD RD, AUGUSTA, GA
VENDERS PH#: (706) 771-0666
VENDERS POC: N/A
VENDERS PART#: 612
VENDERS CATALOG#: 1998

P.22

Pavliscsak, James V.

rom: Pavliscsak, James V.
Sent: Sunday, 29 August, 1999 1:46 PM
To: Oglesby, Curtis D.; '- Oglesby, Curtis D.'
Subject: GENERATOR TRAINING

P:3 & 4

THIS IS NOT FOR OSHA.

I do not have all the records and there may be more at the plant. However I will need an operator to show me?? Recommend we tell our training coordinator furnish all records on accomplished training??

I know we had a lot of initial training plus the 6 day refresher (see 21 Jan- 13 FEB 97) Additionally operators worked with the military each time they were here.

I think the issue is the level of training. They want more to put on their résumé. Not needed. I recommend a fresher by prime power or whomever each spring before running.

1. 10 FEB 1997: 249th Engineer Battalion (Prime Power)
   a. Furnished instructions and Eng Form 2198 (log books)

2. 21 JAN 13 FEB 1997: 249th Engineer Battalion (Prime Power)
   a. report documents Performed EMD Refresher training. Time allotted 6 days. See ANNEX D and E.

3. 26-29 MAY 1998: 249th Engineer Battalion (Prime Power)
   a. Furnished instructions and a copy of Cautions and Clearances SOP with tags and log sheets used by the SOP.

. 3-24 MAY 1999: Instructions on electronic governor

8 MAR 1998: 249th Engineer Battalion (Prime Power) recommended operator training conducted by them. This was in response to operator complaints even after the 6 days from the year before.

Furnished Maintenance instruction sheets section 8, M.I.1716

P.23

Mims, Gregory W.

From: Pavliscsak, James V.
Sent: Wednesday, March 27, 2002 8:13 AM
To: Bennett, Frank D.
Cc: Mims, Gregory W.
Subject: FW: PR UNICOR SIGN (CAUTION - EAR)

-----Original Message-----
From: Newman, Doris E.
Sent: Monday, August 24, 1998 5:11 PM
To: Pavliscsak, James V.
Subject: FW: PR UNICOR SIGN (CAUTION - EAR)

FUNDS ARE AVAILABLE

From: Pavliscsak, James V.
Sent: Monday, August 24, 1998 1:17 PM
To: Jones, Hugh S.
Subject: FW: PR UNICOR SIGN (CAUTION - EAR)

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)
END ITEM APPLICATION: (GEN Operations - SAFETY)

ITEM: SIGN
QUANTITY: 6 EA
COST PER ITEM: 41.69
TOTAL COST: $250.14
ITEM DESCRIPTION: SIGN, CAUTION EAR PROTECTION REQUIRED
VENDOR'S NAME: UNICOR
VENDOR'S PH#: 1-800-827-3168 OR ELECTRONICALLY @ WWW.UNICOR.GOV

REQUISITIONER: RICK RUSEK
DATE: 20 August 1998

File P24
P5

DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER ARMY MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

MCHF-DPCS-CMS (40-5e) 31 Mar 00

MEMORANDUM FOR Chief, DPW COL Debow, ATTN: DPW,PWD,FAC ENG BR,/UMCS Supervisor (Mr. Pavliscsak), USASC&FG, Fort Gordon, GA 30905-5000

SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

1. Reference: 29 Code of Federal Regulation parts 1900 to 1910, Mar 00, Occupational Safety and Health Administration (OSHA) Standards, Department of Labor.

2. On 6 Mar 00, at the request of Mr. John Pavliscsak, William Jordan of Industrial Hygiene (IH) Section, in conjunction with Mr. Russ Blandin of Post Safety completed a review of the subject operation.

3. These findings are noted:

The operation's activities were roughly divided into three groups of tasks: a. Computer Operation and Shop Stock; b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop; c. Generator operations and maintenance. There are 9 workers at this activity, all with the same basic job functions.

a. Computer Operations and Stock Shop: consist of viewing CRT screens that indicate the Installation's power consumption, and the stocking of incoming supplies and equipment. The potential hazard in this section includes ergonomic issues and possible falling objects during stocking duties.

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop: Hazards and associated controls were listed in the presurvey and were evaluated. Listed hazards needing additional controls included vision, hearing, hot surfaces, and chemicals. Additional hazards noted during the survey included steam and limited soldering.

c. Operations and Operator maintenance: Consist of 1500 kW generators powered by 12 cylinder diesel motors. Some exposures were already identified and controlled however additional hearing and chemical controls were needed.

P35

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

4. Recommendation(s):

a. Computer Operations and Stock Shop: None

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly repair shop:

(1). HAZCOM: Complete a chemical inventory of all the cleaners, chemicals, paints, etc. used and obtain associated Material Safety Data Sheets (MSDS). MSDS are available from this Section and/or the supplier. Coordinate HAZCOM training for personnel with Post Safety.

(2). Eye Protection: Keep the emergency eyewash master valve turned on. Flush weekly and document. Obtain chemical splash and impact safety goggles.

(3). Hand and Foot protection: Provide work gloves for metal and material handling. Provide correctly sized chemical protective gloves. Safety shoes must be steel toed and meet ANSI standards for slip resistance and electrical protection.

(4). Hearing Protection: Replace ear muffs and coordinate medical surveillance update (hearing exams) with Occupational Health Section.

c. Generator operations and maintenance (8th Ave Area):

(1). Provide adequate handwashing and hygienic facilities because of exposures to chemicals, oil and fuel.

(2). Insure the eye lavage and shower apparatus is checked at least weekly and documented.

P.26

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

(3). Replace the unserviceable earmuffs, obtain disposable foam earplugs, chemical resistant gloves and heavy work gloves.

(4). Update the chemical inventory (including the Material Safety Data Sheets) for this site as stated for the repair shop above.

5. Results of Post Safety review is provided under separate report. See enclosure.

6. Point of contact is Mr. George S. Pruiett, Industrial Hygienist at 787-1214.

ENCL

ERIC L. DOANE
COL, MC
Chief, Community Medicine Service

CF:
Post Safety
CMS-OH

Q27

S: 25 Apr 00

ATZH-PSB (385-10) 10 Mar 00

MEMORANDUM FOR Directorate of Pubic Works

SUBJECT: Special Standard Army Safety and Occupational Health Inspection of Energy Management Section, Directorate of Public Works

1. References:

a. E-mail note dated 2 Mar 00, SUBJECT: Request for Worksite Update

b. 29 CFR 1910, OSHA General Industry Standards

2. On this date, a Standard Army Safety and Occupational Health Inspection of the Energy Management Section, DPW was conducted by Russ Blandin, Safety and Occupational Health Specialist, Signal Branch Safety, Directorate of Public Safety. Was accompanied on the inspection by the section chief James Pavliscsak and William Jordan, Industrial Hygiene Technician, Community Medicine Service, DDEAMC.

3. A Risk Assessment Code (RAC) has been assigned to each deficiency to determine the degree of risk. Hazards should be abated expeditiously on a worst first basis beginning with a I, Imminent Danger to Life and Health (IDLH), and proceeding down to a IV, negligible.

4. The following deficiencies were noted:

a. Building 14600:

(1) Material Safety Data Sheets (MSDS) not on hand for hazardous chemicals used in the maintenance shop. Reference: 29 CFR 1910.1200. Ensure all personnel who use these hazardous chemicals are in full compliance with the standard, including: Employee training, a complete hazardous chemical inventory, an MSDS on hand in the workplace for each chemical and a written program. RAC III

(2) Fire extinguisher missing in maintenance shop. Reference: 29 CFR 1910.157(c)(4) Corrective action: Replace fire extinguisher. RAC III

028

ATZH-PSB
SUBJECT: Standard Army Safe and Occupational Health Inspection of Energy Management Section, DPW

(3) Personal protective equipment, eye/face shield not provided for employees use at bench grinder. Reference: 29 CFR 1910.133. Corrective action: All PPE must be provided to all employees when required. Recommend installing sign at machine to remind employees to use PPE when operating equipment. RAC III

(4) Guards missing and tool rests not properly adjusted on bench grinder in maintenance shop. Reference: 29 CFR 1910.215. Corrective action: Replace guards and properly adjust tool rests. RAC III

(5) Eyewash in kitchen area inoperable due to a pipe leak. Reference: 29 DFC 1910.151. Have eyewash pipe leak repaired and flush system weekly for several minutes. RAC III

(6) Lighting inadequate over workbench in maintenance shop. Corrective action: Install additional lighting at workbench. RAC III

(7) Ventilation inadequate in maintenance shop during peak maintenance operations involving spray-painting, etc. Ceiling-mounted exhaust fan is thermostatically controlled and failed to operate when attempt was made. Recommend spray painting be performed outdoors and switch installed on exhaust fan. RAC III

(8) Safety SOPs not established for key operations. Reference: AR 385-10 2-2(b). Corrective action: Establish/update SOPs that encompasses all operations, i.e., Lockout/Tag out, HAZCOM, Heat Injury Prevention, Working Around Moving Equipment, etc. RAC III

b. Generator Plant: Area off of 8th Avenue was inoperable and is undergoing major renovation that is scheduled for completion in a few months. Employees are exposed to multiple hazards in this area including: high heat; confined workspaces; high noise levels/vibration; maintenance operations; exhaust fumes; and bulk storage of fuels/oils. Would like to further evaluate working conditions once renovations are complete and normal operations are underway.

P29

ATZH-PSB
SUBJECT: Standard Army Safe and Occupational Health Inspection of Energy Management Section, DPW

5. Request all corrective actions taken to abate deficiencies identified during the safety inspection (i.e., service and/or work order numbers, self help projects, etc.) and target date for correction be provided to this office as soon as possible or no later than date indicated on first page.

6. POC for this action is Russ Blandin at extension 791-7233.

for Russell S. Blandin
STEVEN C. BUZHARDT
C, Signal Safety Division
Directorate of Public Safety

CF:
DPS
GC

P30

Pavliscsak, James V.

TP 5

From: Pavliscsak, James V.
Sent: Friday, September 18, 1998 6:43 AM
To: 'Delvalle, Maria'
Cc: Rusek, Richard D.
Subject: FW: Yearly Occupational Examinations

Ms. DelValle,

Personnel in the Utilities Monitoring and Control Systems (UMCS) Section, DPW, are in need of annual examinations and fittings for safety glasses, hearing protection and other testing as necessary based on exposure to lubricating oils, fuel oils, carbon compounds associated with operating a power plant, and possible exposure to asbestos containing materials.

Because personnel work a continually rotating shift schedule, exams should be scheduled during the period indicated - a time when each employee is on first shift during the normal work week.

If you have any questions or require additional information, please contact me by e-mail or at the phone number listed below.

Employee Name	SSN	Available
James Pavliscsak	259-68-1076	Any week day
Dorsey Combs	259-76 8150	13-16 OCT, 20-23 OCT
William Ellis	259-70-1712	21-25 SEP, 29 SEP - 2 OCT
Ben Fullbright	255-86-1932	5-8 OCT, 13-16 OCT
Gordon Griffin	481-58-9879	28 SEP - 1 OCT, 6-9 OCT
Charles Poston	252-74-6428	14-16 OCT, 19-20 OCT
Brenda Reed	266-80-3767	28-30 OCT, 2-3 NOV
Richard Rusek	434-72-2381	22-25 SEP, 19-23 OCT
Neal Skvarca	259-96-3298	21-23 OCT, 26-27 OCT

Thank you,

James V. Pavliscsak
Manager, UMCS, Facilities Engineering, PWD, DPW
Phone: (706) 791-6423
FAX: (706) 791-7808
DSN: 780-6423

Copy File P31 P5

Author: George Pruiett at medcen10_eamc
Date: 8/14/98 1:26 PM
Priority: Normal
TO: pavliscj@emh1.gordon.army.mil at Internet-Mail
CC: blandinr@emh.gordon.army.mil at Internet-Mail
CC: LTC Eric Doane at MEDCEN2_EAMC
CC: Pablo Nogueras
CC: Arthalia Robertson-Lang
Subject: Results of Industrial Hygiene (IH) Survey, Post Power Plant

---------- Message Contents ----------

1. Mr. Pavliscsak (Jerry), in support of subject survey request from Post Safety (Mr. Blandin) and Fire Department (Chief, Mason) via concerned Power Plant employees, IH completed subject survey on 13 Aug 98. Personnel were concerned about workplace health/safety issues (diesel exhaust vapors to include carbon monoxide (CO), extreme temperatures when working on diesel generators, and noise).

2. Findings:

a. Post Power Plant is comprised of six diesel powered 1500 KW General Motors - Electromotive Division generators. These units supplement/complement Fort Gordons' electrical power requirements in coordination with Georgia Power utility company.

b. Power plant personnel were found to be exposed to uncontrolled CO vapors. Monitoring indicated CO levels up to 15 parts per million (PPM). Regulatory standards (ACGIH & OSHA) 35-50 PPM respectively, averaged over an eight hour work day. Damaged exhaust manifold gaskets on generator # 63442FP (unit located at East end of power plant) was source of health hazard.

c. Power plant personnel were also exposed to extreme heat/temperatures as a result of damaged manifold gaskets in (b) above. Excessive amounts of soot was evident on the interior wall surfaces of this unit. Ambient temperature inside this generator reached 104 degrees during the mid morning hours.

d. Noise measurements confirmed that the Power Plant area is "noise hazardous" (noise exposure of 85 decibels (d(B)A) or greater). Inside the generator compartments the noise levels ranges from 102-110 d(B)A. Personnel did have and use ear muff and/or plugs. Background noise levels at the entry to Power Plant were 85 d(B)A and greater. The entire enclosed (fenced) Power Plant area is classified as a "noise hazardous area" based on results of noise survey. This requires the mandatory use of hearing protection and posting of noise hazardous warning sings.

e. Power plant personnel are frequently exposed to generator hot metal surfaces and motor oil. This results from motor oil leaks from the generators value cover gaskets and absorbent paper towels are used to clean up the leaking oil (minimize environmental contamination).

3. Recommendations:

a. Procure and post "noise hazard/hearing protection required" warning signs for perimeter fence (all sides) of Power Plant.

b. Procure replacement "cushions" for ear muffs in use at subject location. Require Power Plant personnel to use a combination of "ear muffs and plugs" when working around diesel generators at subject location.

P32

c. Coordinate with Occupational Health (OH) personnel at EAMC (787-5306) to ensure that all DA personnel working at subject location are properly fitted with ear plugs as supplemental hearing protection. Baseline hearing test may be required if not document in DA personnel medical records.

d. Repair/replace damaged exhaust gaskets on generator noted in findings section.

4. Point of contact is George S. Pruiett, Industrial Hygienist at 787-1214.

George S Pruiett

Industrial Hygiene Section
Community Medicine Service

P33

NOISE SURVEY
(Sound Level Meter Survey)

DATE (Year Month Day): 98 aug 13

TYPE SURVEY: [1] 1—INITIAL SURVEY 2—RE-SURVEY 3—OTHER

SOUND LEVEL METER		MICROPHONE		CALIBRATOR	
MANUFACTURER: Quest		MANUFACTURER: Quest		MANUFACTURER: Quest	
MODEL: ~~M-28~~ 1800	SERIAL NO: AVEL 10028	MODEL:	SERIAL NO:	MODEL: CA-12B	SERIAL NO:
LAST ELECTROACOUSTIC CALIB DATE: year 97 month 02 day 26		LAST ELECTROACOUSTIC CALIB DATE: year month day		LAST ELECTROACOUSTIC CALIB DATE: year month day	

WIND SCREEN: [ ] USED [X] NOT USED

MEASUREMENTS OBTAINED: [ ] INDOORS [ ] OUTDOORS

DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*

Electrical Power Generators (Diesel)
8th Avenue

PRIMARY SOURCE OF NOISE: Diesel Engines

SECONDARY SOURCE OF NOISE:

SOUND LEVEL DATA

LOCATION	METER ACTION	dBC	dBA	RISK ASSESSMENT CODE	PROTECTION REQUIRED (re: dBA Level): NONE less than 85	PLUG OR MUFF 85—108	PLUG AND MUFF 108—118	PLUG + MUFF + TIME LIMIT greater than 118
#63502 (idle)						107		
#63502 (idle)						106		
~~#63430FP (Idle)~~						~~102~~		
#63421FP (idle)						103		
#63442FP (Idle)						102		
#63442FP (Idle)						102		
#63421FP (Full Load						110		

NOTES: *Range of levels noted by /; i.e., 102/109. At operator work stations, measure at ear level.*
METER ACTION: Enter F for fast meter action and S for slow meter action.

REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

Temp Varied from 99 to 104°F Electromotive Division of GM
model 16-567-E4
serial 66-51-1054
Lagrange Illinois
1500 KW each

MORE DETAILED NOISE EVALUATION REQUIRED: [ ] YES [ ] NO *(If "YES", identify type evaluation needed.)*

NAME(S) OF PERSONS IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

Mr.

NAME, PHONE NO. AND ORGANIZATION OF SUPERVISOR OF NOISE—HAZARDOUS AREA OR OPERATION

Mr. Jerry Palvisak DPW 791-6423

SURVEY PERFORMED BY *(Last Name, First Name, MI)*: Summers, J E & G.S. Pruiett

HEARING CONSERVATION MONITOR *(Last Name, First Name, MI)*: CPT Little

DD FORM 1 SEP 79 2214

Q.34

Johnson, Cassandra T Ms OGC

P 5

From: Delvalle, Maria C EAMC
Sent: Friday, September 15, 2000 2:44 PM
To: Pavliscsak, James V.
Subject: RE: Yearly Occupational Examinations

I was looking for his medical records in order to check when was his last physical. If he is no longer working with us, the medical records must accompany him wherever he goes. Thanks for let me know. If we needed for any reason I will let you know.
Maria

-----Original Message-----
From: Pavliscsak, James V. [mailto:pavliscj@gordon.army.mil]
Sent: Friday, September 15, 2000 2:41 PM
To: 'Delvalle, Maria C EAMC'
Subject: FW: Yearly Occupational Examinations

Mr. Rusek went active duty with the Air Force for 3 months. He took his records with him. He returned to work on 1 September 2000. However he left Fort Gordon civil service 9 September 2000 transferring to the Savannah District Corp of Engineers. He is with Hydropower working out of Elberton Georgia.

If you need his records I can get in touch with him. Please let me know.

> -----Original Message-----
> From: Delvalle, Maria C EAMC [SMTP:Maria.Delvalle@se.amedd.army.mil]
> Sent: Thursday, 13 July, 2000 5:32 PM
> To: Pavliscsak, James V.
> Subject: RE: Yearly Occupational Examinations
>
> Hi sir:
> These is the information I got from the medical records. Still looking for
> Mr. Rusek med records. Can you please ask him if he has Occ Health Medical
> records? Thanks.
>
> 1. Ellis, William/ 259-70-1712
>
> Hearing Test 10 Mar 00 / 3 Nov 98
> Safety Glasses Evaluation / 10 Mar 00; 1998 Not completed
> Eye screening /10 Mar 2000 / 3 Nov1998
> Physical / 17 Mar 00 / 3 Nov 98
> PFT's 2-29-00
>
> 2. Fullbright, Reuben/ 255-86-1932
>
> Hearing Test / 21 Mar00/13 Oct 98
> Safety Glasses / 5 Nov 98
> Eye screening / 21 Mar 00 / 13 Oct 98

P35

> Physical / 19 Apr 00 / 18 Oct 98
> Clear for Respirator / 19 Apr 00 / 13 Oct 98
> PFT's 21 Mar 00 /9 Nov 98
>
> 3. Combs, Dorsey/ 259-76-8150
>
> Hearing Test / 2000/ pending / 13 Oct 98
> Safety Glasses / 2000 pending / 1998 not completed.
> Eye screening / 23 Feb 00 / 13 Oct 1998
> Physical / 2000 pending / 16 Oct 1998
> Cl. for respirator / 2000 pending / 13 Oct 1998
> PFT's / 2000 Pending / Oct 1998
>
> 4. Brenda Reed/ 266-80-3767
>
> H. Test / 2-23-2000 / 2 Nov 1998
> S. Glasses / 3-9-2000 / 20 Apr 1999
> E. Screening / 2-23-2000 / 30 Oct 1998
> Cl. for Resp./ Pending
> PFT's / 4-28-2000 / 30 Oct 1998
> Physical / 2000 Pending / Nov 1998
>
> 4. Skvarca, Neal/ 259-96-3298
>
> H. Test / 22 Feb 00 / 23 Oct 1998
> S. Glasses / 3-10-2000 / 17 Nov 1998
> E. Screening / 22 Feb 00 / 23 Oct 1998
> Cl. for Resp. / Mar 2000 / Oct 1998
> PFT's / 22 Feb 00 / 23 Oct 1998
> Physical / 10 Mar 2000 / 23 Oct 1998
>
> 6. Griffin, Gordon/ 481-58-9879
>
> H. Test / 7 Mar 2000 / 6 Oct 1998
> S. Glasses / 9 Mar 2000
> E. Screening / 7 Mar 2000 / 9 Oct 1998
> Cl. for Resp. / Mar 2000 / 1998 (with beard)
> PFT's / 7 Mar 2000 / 6 Oct 1998
> Physical / 28 Mar 2000 / 9 Oct 1998
>
> 7. Pavliscsak, James/ 259-68-1076
>
> H. Test / 20 Nov 1998
> Safety Glasses / Nov 1998
> E. Screening / Nov 1998
> Cl. for Resp. 20 Oct 1998
> Physical / 30 Oct 1998 (not finished)
>
> 8. Poston, Charles
>
> H. Test / 2 Mar 2000 /14 Oct 1998
> Safety Glasses / 3 Mar 2000 / Nov 98 Referral given.
> E. Screening / 2 Mar 2000 / 14 Oct 1998

P. 36

> Cl. for Resp. / 2 Mar 2000 / 14 Oct 1998
> PFT's / 2 Mar 2000 / 14 Oct 98
> Physical / 12 Apr 2000 / 16 Oct 1998
>
> -----Original Message-----
> From: Pavliscsak, James V. [mailto:pavliscj@gordon.army.mil]
> Sent: Friday, June 30, 2000 10:42 AM
> To: 'Delvalle, Maria'
> Cc: 'Pruiett, George S EAMC'; Blandin, Russell S.; '- Oglesby, Cris';
> Oglesby, Curtis D.
> Subject: Yearly Occupational Examinations
>
>
> 1. I need the dates of the last three examinations and fittings for safety
> glasses, hearing protection and other occupational testing for the
> personnel
> in the Utilities Monitoring and Control Systems (UMCS)Section, DPW,
>
> Employee Name SSN TESTED
>
> Combs, Dorsey D. 259-76-8150
>
> Ellis, William E. 259-70-1712
>
> Fullbright, Reuben R. 255-86-1932
>
> Griffin, Gordon D. 481-58-9879
>
> Pavliscsak, James v. 259-68-1076
>
> Poston, Charles F. 252-74-6428
>
> Reed, Brenda L. 266-80-3767
>
> Rusek, Richard D. 434-72-2381
>
> Skvarca, Neal M. 259-96-3298
>
>
> 2. If you have any questions or require additional information, please
> contact me by e-mail or at 791-4148.
>
> James V. Pavliscsak
> DPW - UMCS
> Building 14600

037

Johnson, Cassandra T Ms OGC

From: Pavliscsak, James V.
Sent: Thursday, June 29, 2000 2:06 PM
To: Oglesby, Curtis D.
Subject: FW: Yearly Occupational Examinations

FYI - We need to discuss.

-----Original Message-----
From: Pavliscsak, James V.
Sent: Friday, 18 September, 1998 6:59 AM
To: Oglesby, Curtis D.; '- Oglesby, Curtis D.'
Subject: FW: Yearly Occupational Examinations

Curt, see the e-mails below this message. All employees except for Mr. Rusek failed to make an appointment as instructed (SEE Item c.). I also had a hell of a time getting parts list (SEE Item d.). I had Mr. Rusek draft the e-mail I sent to OH.

I am giving you this information as input for your annual appraisal discussions due in November. With all the complaining, they didn't lift a finger to resolve the problems.

From: Pavliscsak, James V.
Sent: Friday, 18 September, 1998 6:42 AM
To: 'Delvalle, Maria'
Cc: Rusek, Richard D.
Subject: FW: Yearly Occupational Examinations

Ms. DelValle,

Personnel in the Utilities Monitoring and Control Systems (UMCS)Section, DPW, are need of annual examinations and fittings for safety glasses, hearing protection and other testing as necessary based on exposure to lubricating oils, fuel oils, carbon compounds associated with operating a power plant, and possible exposure to containing materials.

Because personnel work a continually rotating shift schedule, exams should be scheduled during the period indicated - a time when each employee is on first shift during the normal work week.

If you have any questions or require additional information, please contact me by mail or at the phone number listed below.

Employee Name	SSN	Available
James Pavliscsak	259-68-1076	Any week day
Dorsey Combs	259-76-8150	13-16 OCT, 20-23 OCT
William Ellis	259-70-1712	21-25 SEP, 29 SEP - 2 OCT

038

Reuben Fullbright	255-86-1932	5-8 OCT, 13-16 OCT
Gordon Griffin	481-58-9879	28 SEP - 1 OCT, 6-9 OCT
Charles Poston	252-74-6428	14-16 OCT, 19-20 OCT
Brenda Reed	266-80-3767	28-30 OCT, 2-3 NOV
Richard Rusek	434-72-2381	22-25 SEP, 19-23 OCT
Neal Skvarca	259-96-3298	21-23 OCT, 26-27 OCT

Thank you,

James V. Pavliscsak Phone: (706) 791-6423
Manager, UMCS, Facilities FAX: (706) 791-7808
Engineering, PWD, DPW DSN: 780-6423

From: Pavliscsak, James V.

Sent: Tuesday, 18 August, 1998 12:33 PM

To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal

Cc: Oglesby, Curtis D.; '- Oglesby, Curtis D.'

Subject: FW: Results of Industrial Hygiene (IH) Survey, Post Power Plant

Take note of recommendations:

Item a. : Order signs ASAP and post signs when received.

Item b. : Order replacement cushions ASAP. Follow recommendations for combination hearing protection.

Item c. : Call and make an appointment for yourself to be fitted and for testing if required.. Make appointment ASAP between 0800 and 1100 hours on a day when you are working days.

Item d. : Reference my e- mail on repair parts. Provide a list of parts on hand, include whatever is stocked by JCWS. Order all additional parts needed.

a. Procure and post "noise hazard/hearing protection required" warning signs for perimeter fence (all sides) of Power Plant.

b. Procure replacement "cushions" for ear muffs in use at subject location. Require Power Plant personnel to use a combination of "ear muffs and plugs" when working around diesel generators at subject location.

c. Coordinate with Occupational Health (OH) personnel at EAMC (787-5306) to ensure that all DA personnel working at subject location are properly fitted with ear plugs as supplemental hearing protection. Baseline hearing test may be required if not document in DA personnel medical records.

039

d. Repair/replace damaged exhaust gaskets on generator noted in findings section.

From: James Pavliscsak[SMTP:pavliscj@emh1.gordon.army.mil]

Sent: Monday, 17 August, 1998 8:50 AM

To: Pavliscsak, James V.

Subject: Results of Industrial Hygiene (IH) Survey, Post Power Plant

Original-From: "George Pruiett"<george_pruiett@ddeamc.smtplink.amedd.army.mil>
Original-Date: Fri, 14 Aug 98 15:22:21 -0500

1. Mr. Pavliscsak (James), in support of subject survey request from Post Safety (Mr. Blandin) and Fire Department (Chief, Mason) via concerned Power Plant employees, IH completed subject survey on 13 Aug 98. Personnel were concerned about workplace health/safety issues (diesel exhaust vapors to include carbon monoxide (CO), extreme

temperatures when working on diesel generators, and noise).

2. Findings:

a. Post Power Plant is comprised of six diesel powered 1500 KW General Motors - Electromotive Division generators. These units supplement/complement Fort Gordons' electrical power requirements in coordination with Georgia Power utility company.

b. Power plant personnel were found to be exposed to uncontrolled CO vapors. Monitoring indicated CO levels up to 15 parts per million (PPM). Regulatory standards (ACGIH & OSHA) 35-50 PPM respectively, averaged over an eight hour work day. Damaged exhaust manifold gaskets on generator # 63442FP (unit located at East end of power plant) was source of health hazard.

c. Power plant personnel were also exposed to extreme heat/temperatures as a result of damaged manifold gaskets in (b) above. Excessive amounts of soot was evident on the interior wall surfaces of this unit. Ambient temperature inside this generator reached 104 degrees during the mid morning hours.

d. Noise measurements confirmed that the Power Plant area is "noise hazardous" (noise exposure of 85 decibels (d(B)A) or greater). Inside the generator compartments the noise levels ranges from 102-110 d(B)A. Personnel did have and use ear muff and/or plugs.

Background noise levels at the entry to Power Plant were 85 d(B)A and greater. The entire enclosed (fenced) Power Plant area is classified as a "noise hazardous area" based on results of noise survey. This requires the mandatory use of hearing protection and posting of noise hazardous warning sings.

e. Power plant personnel are frequently exposed to generator hot metal surfaces and motor oil. This

results from motor oil leaks from the generators value cover gaskets and absorbent paper towels are used to clean up the leaking oil (minimize environmental

contamination).

940

3. Recommendations:

a. Procure and post "noise hazard/hearing protection required" warning signs for perimeter fence (all sides) of Power Plant.

b. Procure replacement "cushions" for ear muffs in use at subject location. Require Power Plant personnel to use a combination of "ear muffs and plugs" when working around diesel generators at subject location.

c. Coordinate with Occupational Health (OH) personnel at EAMC (787-5306) to ensure that all DA personnel working at subject location are properly fitted with ear plugs as supplemental hearing protection. Baseline hearing test may be required if not document in DA personnel medical records.

d. Repair/replace damaged exhaust gaskets on generator noted in findings section.

4. Point of contact is George S. Pruiett, Industrial Hygienist at 787-1214.

Industrial Hygiene Section
Community Medicine Service

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON DC 20310-0104

16 August 2002

Ms. Catherine A. McMullen
Chief, Disclosure Unit
U.S. Office of Special Counsel
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

Re: OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Ms. McMullen:

This letter is a status report for the above captioned cases. I am requesting that you grant an extension of time to file the Department of the Army's report required by 5 USC §1213 for the above captioned Office of Special Counsel (OSC) cases that cited allegations of violations of law, rule, or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia.

The request is being made because there were several issues that needed to be further addressed in the Initial Investigative Report prepared by the United States Army Training and Doctrine Command (TRADOC) and its activity at Fort Gordon. As this effort was only recently completed, additional time was needed to complete the Army's review of the entire report before the final Department of the Army report could be forwarded to the Special Counsel.

I appreciate your assistance in granting the extension. Please advise me if this extension will be granted so I can proceed to the next step. I can be reached at 703-697-6493.

Cassandra Tsintolas Johnson

CASSANDRA TSINTOLAS JOHNSON
Associate Deputy General Counsel
(Human Resources)

Printed on Recycled Paper

U.S. OFFICE OF
SPECIAL COUNSEL
MAILROOM

2003 APR 30 AM 10: 58

p1

REPORT OF INVESTIGATION

3. Summary of evidence obtained from investigation

A. Safety

(2.) Paragraph 1

When allegations were made there was not a contract so there is no need to address what Noresco has done. From what I have seen, Noresco has tried to make things safer and comply with rules, laws and regulations. There may be a couple of issues that still need to be addressed (To be discussed below) but I feel the problem is the government tasking the contractor to do a requirement not in their contract. As is mentioned whistleblowers received some PPE and PPE training only after having OSHA inspectors came to Fort Gordon and cited Fort Gordon for not providing them. As far as receiving a SOP for lock-out/tag-out goes, this too is a false statement. As can also be seen in statement 4 of Mr. Pavliscsak's memo To whom it may concern. Mr. Pavliscsak states he had SOPs. Clearly this was a false statement since he was cited by OSHA during their on-site inspection. During this inspection Mr. Pavliscsak offered what he called an SOP to Floyd Gattis (OSHA Inspector). Mr. Gattis quickly informed Mr. Pavliscsak that was not an SOP that it was a policy. Mr. Gattis told Mr. Pavliscsak he wanted site specific, equipment specific SOPs, at which point, Mr. Pavliscsak stated that would require in excess of 2500 SOPs. Mr. Gattis's reply was "fine let me see 2500 SOPs". **(See SOP page 1-2 [Note] Mr. Fobish was in equipment room when OSHA told Mr. Pavliscsak what was required. Mr. Fobish was writing "SOP"s for Mr. Pavliscsak.)** We were required by Mr. Pavliscsak to sign for what he was calling a SOP during training given by CWO Fobish. Even though we told him it was not a SOP. We were then told by CWO Fobish to look over them and give him corrections. ***(Note)*** The reason a SOP has to written this way is because a pump, fan, etc. may be on breaker 17 in one building, yet in the next building over the same equipment may be on a totally different breaker. No mechanic can keep up with all this information, thus requirement for proper SOPs instead of just a policy.

Because UMCS was wired into all equipment on post and needed SOPs for not just Power Plants was the reason for the high number required. Those SOPs have still not been written. Noresco has put much more detail in their policies for power plant but as far as all equipment goes, they do not exist. Since there are several contractors working on this equipment for the government. For SOPs to work correctly, the government has to maintain them even if the government tasks writing and maintaining them to a contractor. That contractor does not have control of other contractors to make sure they are following the same lock-out/tag-out procedure as required by 29 CFR 1910.147. Since the government is the contracting office, they retain this responsibility. **Footnote** *For a contract to go out it must contain a Performance Work Statement (PWS). An important part of the PWS is all SOPs. As stated in AR5-20 and DA Pam 5-20 (Commercial Activities Program)*

Paragraph 2

Ms. Myers this paragraph is one of the reasons for asking "who is reading this". In this statement whoever wrote it quotes 1910.147(e)(3) they put in 4 dots. Please compare their statement to this:

> **1910.147(e)(3)**
>
> **Lockout or tagout devices removal.** Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. **Exception to paragraph (e)(3):** When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program. The employer shall demonstrate that the specific procedure provides equivalent safety to

the removal of the device by the authorized employee who applied it. The specific procedure shall include at least the following elements:

1910.147(e)(3)(i)

Verification by the employer that the authorized employee who applied the device is not at the facility:

1910.147(e)(3)(ii)

Making all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed; and

1910.147(e)(3)(iii)

Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.

Leaving out the following words; , provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program: totally changes the meaning of the statement. As was documented at the time it is also the reason OSHA told Mr. Pavliscsak to return the keys to employees. *Encl 2=Brenda's note* At the time OSHA was here locks had been given out without training or policy. Mr. Pavliscsak used this same tactic for writing Brenda up for not returning keys.

Fort Gordon's investigators did not visit generator site and visually observe anything during whistleblower operations.

On their note about not being in our job description see E-mails and notes of meetings with Curt. **(See MEETINGS pg. 6, para.4 [Power Plant] and pg. 4 para. 6)**

A. Safety

(4.) Paragraph 1

While we did receive PPE training, we did not receive coveralls, electrical hazard gloves or safety shoes/boots etc., as stated during inspection. Noted in 1-1a of OSHA report (OSHA page #4)

UMCS worked all over post since that is where equipment was located, IH only wanted or was told to inspect only power plants and operating room at 14600. RE: 1-1b of OSHA report (OSHA page #4)

They did provide training even though we still didn't have PPE. RE: 1-1c of OSHA report (OSHA page #5)

As noted above SOPs still do not exist. RE: 1-2a of OSHA report (OSHA page #5)

Training, while limited, was provided by ESI. (Training pages 1-8)

On 15 April 03 while reading Terry Smith's response to information, I noticed he said since OSHA did not do a follow-up after on-site inspection, Fort Gordon must have complied. This was not a true statement, we called OSHA at least 3 times and their final response was, Russ Blandin of Fort Gordon post safety is the OSHA liaison and is handling the listed issues.

After reading this I called OSHA to find out why there was never any follow up. Mr. Gattis was not in so I spoke with ******* who said he would take the information. During the conversation I told him I would be glad to show him where problems still existed if and when he came down. He then informed me it would be

illegal for him to tell me, if his supervisor decided: if and when he would be coming. It would also be illegal to tell anyone from Fort Gordon also.

On the 16th I found out that OSHA had called and told Fort Gordon that there had been another complaint filed and Russ would be calling Pavliscsak to let him know when they will be here.

I can't help but feel, I have also been lied to by OSHA.

OSHA informed me they could not levy fines against the government like they do against private industry. Meaning it must be OK for the government to put employees at undo risk, but if private companies try it they will be fined by the same government that does not have to follow the rules. I personally see a problem with this picture.

Bottom line is I do not know why they did not return as they said they would.

Paragraph 2

The eyewashes were replumbed during June/July 2001 after contract started and ESI was rebuilding generators. Johnson Controls World Services did the work on a service order. The problem of location of shower verses hazard as required by Mr. Gattis during inspection, has never been accomplished. In the statement "The Fort Gordon investigators observed the operation of the on-site showers and eyewashes, and they appeared to be fully functional" shows the investigators did not read or did not understand ANSI standard Z358.1-1998. Yet it is clear that the problem was known, since in ERI's/Noresco's scope of work you will notice requirement to relocate batteries. (ANSI standard requires batteries and eyewash/showers be on the same level with no doorways, at present they are not meeting this requirement) **(See EYEWASH pg. 4 and pg. 8, note 3.C,)** Since they state the Safety Office and IH office are keeping up to ensure standards are met, they must not be able to read the standard either.

B. Training

(1.) Paragraph 1

Again the investigators are making a false statement. UMCS never made an allegation that Noresco was not providing training. As a matter of fact, you can tell from their scope of work the first thing Noresco did was overhaul the 6 units of concern to UMCS. This action by itself made the Power Plants a much safer place.

B. Training

(2.) Paragraph 1

In report of March 1996, 3rd Platoon, B Company, 249th training is mentioned in that report is in 5.2 Operations, [sub-paragraph b.] "Operators were trained by Prime Power personnel after completion of the plant installation in July 1995. There are no records at the plant of any training conducted. Recommendation: Provide training records of operators present and future." **See ANNUAL INSPECTIONS pg 26, 5.2.1,b.)**

(NOTE) Not saying it was not in the plan, but due to problems during installation, delays and such, we as stated throughout, did not receive the training and that is the reason there are no records. These correspondences have been going on for 4 years, I can promise you, if such records existed, they would have been included in this report.

As for the February 1997 Prime Power report stating that SSG Smith ensuring proper EMCS training, it just didn't happen. Although SSG Smith did a great job, he was only available for about 3-half days a week when he could get away from his duties at the MI. He never gave any training as such. At best he was able to answer questions asked by operators. In the same paragraph (4.3), Prime Power states the EMCS personnel responsible for the operation and maintenance of the plant are doing an excellent job. As noted in A.,2, 2 above, the investigators state EMCS was not doing this since it wasn't in their job description. In the

same report investigators state a six-day EMD Refresher Training was given to the EMCS personnel. In the report (3.2) Perform EMD Refresher Training. Time allotted six days. In 4.4 it becomes clear that training referred to was not for EMCS but for soldiers. "The training consisted of class room instruction at Ft. Benning with hands on training at Ft. Gordon." **(See ANNUAL INSPECTION pg. 7, 3.2, also pg. 8,4.4) (Also see pg. 6, 7.b.—pg. 33 note 1. --- and pg. 37, 4.4) Footnote** After reading this statement I asked Glenn Stubblefield, who was handling all power plant inspections and projects, to see his notebook titled EMD Annual Inspection Reports. He could not find the notebook and told me to check with Mr. Pavliscsak who said he did not know where it was. The reason I wanted this book was prior to OSHA's visit, I copied the contents; 7 Annual Inspection reports, 5 of which had a statement that UMCS operators needed training on power plants: I gave my copies to Floyd Gattis the OSHA inspector. **This note is in a statement below. The ones I quoted were just a few I still had.**

(2.) Paragraph 2

This is a true statement however note MSDS sheets were not required until Post Safety (Russ Blandin) required them in 2000.**(See IH & Post Safety pg. 16 #4)**

(2.) Paragraph 3

If you notice the first formal training we received was from ESI in March 2000, you will notice from the from the cover sheets it was a special course prepared just for Fort Gordon. Mr. Batchelor (ESI's Instructor) explained to us not to expect too much from this training. Since Mr. Pavliscsak instructed him that the class would not exceed two days and the standard EMD operator class at Rocky Mt. was two weeks split 50/50 classroom and hands-on. **(See TRAINING pgs. 1-8, ESI memo-fax dated June 2, 2000)**

(2.) Paragraph 4

See paragraph a.,(2) para 1 above.

(2.) Paragraphs 5 and 6

As stated above this was not an issue in whistleblowers allegations. As can be seen in documentation whistleblowers did do maintenance as well as operation. **(See TRAINING All sheets)**

C. Certifications

(1.) Paragraph 1

If AR's are not mandatory, why are they called regulations and not guidelines? A DA Pam is a guideline to back up AR's.

C. Certifications

(2.) Paragraph 1

Where investigators say they showed where Prime Power provided training …See Section B. above and attached documentation. The fact we were not issued a OF 346 is well known and we cannot disagree with that statement.

D. Oversight of the Noresco Contract

(2.) Paragraph 1

By the time you finish reading this entire report, it should be clear that the COR's word is at best questionable. While I was writing this report, Mr. Pete Batayias (Fort Gordon site manager for Noresco) turned in his resignation, sighting he could no longer deal with the lies and harassment. Since he was doing such a good job for the company, they created a position for him away from Fort Gordon. A question I have is why we have two COR's for a contract with less than a dozen on-site employees, yet only one COR and four tech monitors for JCWS maintenance and repair contract having hundreds of on-site employees. Also

since CORs are appointed by the contracting officer (KO) to handle this duty along with their regular job, and since EMCS was contracted out, where Mr. Pavliscsak was the Manager of EMCS. Since Glenn Stubblefield is Energy Engineer, What is Mr. Pavliscsak's job? This is a question I have been asked on numerous occasions. Where it says management informed investigators that SOP's had formerly been in use.... See A.,(2), para 1 above.
It should be clear by now, Fort Gordon investigators don't know the difference between a SOP and a policy.

4. Listing of any violation or apparent violation of law, rule, or regulation.
If this report is read and understood, by a person with enough technical knowledge, it will become obvious that violations did exist under in-house UMCS operations and still do today.

5. Description of any action taken or planned as a result of the investigation.
A. Do not fix problems
B. Contract-out and get rid of problem
C. No employees left see B. above
D. Not Yet
E. See 3A(4) above, you be the judge

Report of Investigation (Notes)
3. ROI, page 1, paragraph 2, line 8
Cleary this shows managements efforts to word the report in a way to show falsely, they had always compiled with safety guidelines and laws.
(NOTE) This sentence has been removed from ROI.

4. ROI, page 2, paragraph 3A(2)
Paragraph 1
As notes in attachments, **(TRAINING E-Mails)** Operators worked on fuel systems, circuit breakers, potential transformers, control devices and many others. The author of this paragraph is clearly trying to use any reader's lack of technical experience to make the reader believe 110/220 volts is not dangerous. What the reader is not supposed to know is the fact that more people are electrocuted by 110 volts, in the United States, each year than any other voltage. It is also the reason OSHA uses a threshold of 50 volts in all their regulations.**(See LOTO OSHA Regulations)**
Also see note from Wes Batchelor dated June 8, 2000, paragraph 4 states, the National Electrical Code (NEC) break between low and high voltage is 600 volts. As far as the most important safety precautions (Power disconnected), the author failed to inform you, when the power plant was installed in 1995, control vans were wired directly to the shore power transformers. **(There were no disconnects)** Disconnects were not installed until 2000, under a Johnson Controls work order for installing oil/water separator and paving.
(NOTE) This was when the eyewash/showers were first installed.
Paragraph 2
This paragraph contains several false statements, as stated above about OSHA and 50 volt rule. Now the author wants you to believe 4160 volts is not high voltage and that potential transformers only contain 4160. When Rick Pelch and Dean Strasner were here from Hill AFB Rail Yard to work on plants, I went to

show them where I had to service the P/Ts one day. They both jumped down my throat for not having shunted the P/Ts, telling me what a shunt device was, why it was used, and that failure to do so could mean instant death because a P/T holds a charge that could be tens of thousands of volts. (Point) In my younger years a friend's father who worked for Georgia Power, was working on a 4160 line, the operator of the bucket truck put the bucket against a hot wire (this was before they used ground wires as they are required to today). Mr. Purdue, not knowing the bucket was touching the wire, walked up to get a tool out of the box. The only thing left was his boots with parts of feet left in the burning grass where he was standing.

If DPW management wants to prove to me, 4160 is not high voltage, they can do so by all holding hands, letting the person on one end grab a ground while the person on the other end grabs a hot 4160 volt unfused line.

Paragraph 3

Again they are pulling lines from a regulation, they fail to tell you that to qualify from on-the-job training a person must always be under direct supervision and we had no supervision at the power plants, truth be known Mr. Pavliscsak made it a point to not hang around when units were on-line. He wasn't qualified either.

5. ROI, Tab B

Paragraph 1

Proir to OSHA's on-site visit there was no PPE training, the only PPE given was safety shoes/boots, glasses and ear protection that came with power plants. In Frank Bennett's letter to Mr. Jordon , requesting documentation on training the reply was they had a sign-in sheet. Yet there is no documentation. As for as Mr. Pavliscsak checking out a tape, (No documentation) I can neither verify nor deny, I can only say I have not seen it nor have other operators I spoke with. I will say it is nice to see a person who did not perjure themselves by producing a false document as has been done in the past.

6. ROI, Tab C

Paragraph 1

Clearly as seen in A., (2), para 1 above, there were no SOP's, as cited in memo dated 10 Mar 00 from Post Safety, **(See IH & POST SAFETY pg.17 note 8)** Safety SOPs not established for key operations…., Also in 12 Feb 97, Annual Inspection Reoort, 5.3 states "The SOP for the plants is vague and is hard to understand. It is recommended that a more precise SOP covering all aspects of plant operation and maintenance be written. **(See ANNUAL INSPECTION pg. 2, note 4.a., 4.b., pg. 9 note 5.3, pg. 26, note 5.2.1.c., 5.2.1.d. and5.2.1.e)** It is also noted that the operators should be certified by Prime Power Cadre." (NOTE) The reason for the vagueness is because the referred to SOPs were just notes, the operators had made on starting and stopping units. Again mentioned in March 1996 AI Report 5.2.1, c, states "There are no operating procedures posted at the power plant. Recommendation: An SOP should be provided and should include operating procedures that cover any system peculiarities. It should include emergency procedures and phone numbers." And of course OSHA finding no SOPs during their on-site inspection, which as stated above still do not exist. Even though the "SOP" written by the contractor was approved by Mr. Pavliscsak, the COR who knew it wasn't following OSHA's stated guidelines.

7. ROI, Tab G

Paragraph 1

I could not help but notice all reports referred to in this paragraph were for 2000, yet in an inspect by Mr. Pruiett dated 22 Oct 1998, Subject: Respiratory Protection, DPW-EMS, Power Plant Personnel, Mr. Pruiett addresses requirement for respiratory protection. In Mr. Pavliscsak's reply dated 28 October 1998, he

states, "the safety equipment referred to in the employees' job description includes eye protection (safety glasses and/or face shield), steel toe safety shoes, hearing protection (ear plugs and ear muffs), and acid resistant rubber aprons and gloves. At the present time, the only reparatory protection required and worn is a dust mask when in dusty or spray painting areas, this happen infrequently. "

(See PPE) On Jun 06, 2000 SJA stated, " Members of this office visited your work site and inspected the location of the batteries. The is no evidence of government negligence in not providing protective clothing because checking the batteries can be accomplished without coming into contact with acid. " (Please see Page 1-7, Session 3 Training Manual Document 76327TNG3) Stating, "The principle hazard in connection with batteries is the danger of acid burns when refilling or when handling them. These burns can be prevented by the proper use of eye shield, rubber gloves, rubber aprons, and rubber boots with non-slip soles. Rubber boots and apron need to be worn when batteries are being refilled. Always wear safety glasses when working around batteries to prevent possibility of acid burns of the eyes. "

Then again in response to Allegation 4, dated June 12, 2000 to Mr. R.G. Finney OSHA. Mr. Pavliscsak's response is " Employees do not work in contaminated areas; therefore decontamination is not required or expected during normal operations. At the generator site, UMCS employees are required to perform operational checks of the generators. This includes checking the fluid level of the batteries (not performing maintenance) that are installed below floor level. Occasionally, a battery will require refilling with distilled water and Personal Protective Equipment (PPE) is available when required. In the event of an emergency, 911 personnel would be called so that the response team and hospital personnel could perform decontamination procedures as required. Response teams are no more than minutes and two mile from the generator site. Additionally, two emergency eyewashes and showers are available at the generator site. (NOTE: The are the eyewashes that don't meet OSHA requirements.) Also note 10 march 2000 Memo for DPW, Subject: Special Standard Army Safety .....4. b., "Generator Plant: Area off of 8th Avenue was inoperable and is undergoing major renovation that is scheduled for completion in a few months. Employees are exposed to multiple hazards in this area including: high heat; confined workspaces; high noise levels/vibration; maintenance operations; exhaust fumes; and bulk storage of fuels/oils. Would like to further evaluate working conditions once renovations are complete and normal operations are underway. **(See IH & POST SAFETY pg. 17 note 4.b.)** All leading up to being cited by OSHA in their 09-2000 inspections.

On Aug 14 1998, Mr. Pruiett sent a message to Mr. Pavliscsak about doing a survey at the power plant at the request of Post Safety (Mr. Blandin) and Fire department (Chief Mason), IH completed survey on 13 Aug 98. A concern of mine is through all the investigations, no one has asked why Chief Mason asked for an IH survey. The fact being every time a fire department vehicle went by while we were on line, the CO warning alarms on their fire-fighting uniforms were going off. An alarm to warn fire fighters to clear the area or go on compressed air. Mr. Mason had brought a meter to the power plant to see where the problem was coming from while we were on line. Upon entering the gate, the meter went off the scale. He had to take the meter back to the fire house, lay it in an air conditioning duct with register removed, for 20 plus minutes before it came back on the scale. On an earlier visit Mr. Mason and John Houpt (Post Safety) came out to ask about the problem. It was in the afternoon, while we were on line. They were both shown thermometers readings in all units. Highest reading in excess of 250 degrees. Documented in memo dated 4 Feb 99 from 249th Engineer Battalion (Prime Power), 1 ST PLT, B Company....,3.4. **(See ANNUAL INSPECTION pg. 35 note3.4)** That is the reason for requesting IH survey.

Although IH and Safety conducted several investigations dating back to 1998, they usually only addressed one issue at a time instead of making a list of requirements and no where is there any documentation to show follow-up visits to make sure requirements were met. Thus, they were ignored just like all of rules, regulations and noted employee concerns.

8. ROI, Tab S
Paragraph 1

As said before, there is no need to address this issue since we are not talking about Noresco, other than to say By the time you finish reading this entire report, it should be clear that the COR's word is at best questionable. While I was writing this report, Mr. Pete Batayias (Fort Gordon site manager for Noresco) turned in his resignation, sighting he could no longer deal with the lies and harassment.

MEMORANDUM FOR WHOM IT MAY CONCERN
SUBJECT: Additional Information on UMCS Safety

Statement 2 says employees always had access to safety equipment. OSHA inspection on 9/19 and 9/20 clearly shows this to be a false statement. It also shows statement made in fact-finding to be false. Also statement made to Fort Gordon SJA to be false. The thing that makes these statements blatant lies is the statement Mr. Pavliscsak made in response to Mr. Pruiett's 22 Oct 1998 investigation and requirement for respirators, when Mr. Pavliscsak stated equipment needed. **(See IH & POST SAFETY pg. 19, PPE pg.9, pg. 32-33** ***Pay attention to Curt"s note at top of 32 after reading my note for record in center of 33*****)**

In his statement Mr. Pavliscsak states all employees were empowered to purchase and receive on signature cards. This was a true statement prior to Impact cards when only Mr. Pavliscsak made all purchases and as documented, he rejected orders.

As far as footwear went, the only order Mr. Pavliscsak had raised any concerns about was a pair of PAC boots ordered by Mr. Rusek, which he received and kept in his locker at work. Mr. Rusek ordered these due to working in wet locations. Afterwards Mr. Pavliscsak turned down all request for footwear.

As far as safety glasses go, I can only speak from my own experience in saying when I ordered my glasses, they had to be from a few pairs available. The hospital had the samples to be fitted and since they were coming from Unicor these were limited. I did not see any wire rims as Mr. Pavliscsak is claiming even being offered.

In number 3 Mr. Pavliscsak claims we were out for a 2-year school at Ft. Belvoir. This statement is false, we only wanted enough of the proper training to feel safe and confident in operating the power plant. Both people from Benning and Mr. Batchelor with EMD had informed us of 2-week operator schools at their locations. If you notice the first formal training we received was from ESI in March 2000, you will notice from the cover sheets it was a special course prepared just for Fort Gordon. Mr. Batchelor explained to us not to expect too much from this training. Since Mr. Pavliscsak instructed him that the class would not exceed two days and the standard EMD operator class at Rocky Mt. was two weeks. * See Engine Systems memo fax dated June 2, 2000.

In Statement 4 Mr. Pavliscsak states he had SOPs clearly this was an false statement since he was cited by OSHA on their site inspection. During this inspection Mr. Pavliscsak offered what he called an SOP to Floyd Gattis (OSHA Inspector). Mr. Gattis quickly informed Mr. Pavliscsak that was not an SOP that was a policy. *SOP & Policy Mr. Gattis told Mr. Pavliscsak he want Equipment specific SOPs **(See SOP pg.1&2)** At which point, Mr. Pavliscsak stated that would require an excess of 2500 SOPs and Mr. Gattis said "fine let me see 2500 SOPs". *See Memo of March 10, 2000 from Fort Gordon Safety office.Notes

Statement 4A1, 8, b, 5. See Inspection of 9/19/2000

Yes, employees received safety screening here on post, but Mr. Pavliscsak refused to follow the recommendations. Examples: We were never provided respirators, PPE was only provided after OSHA inspection, SOPs were never provided, etc as noted above. **see documentations********

Statement 5 Mr. Pavliscsak stated that OSHA said "no one was without footwear". I was in that meeting Mr. Gattis' statement was "if there are no orders exceeding $200 get them their damn footwear".(Witness: *Bill Otto)
Paragraph 2 government records are required for ten years, Mr. Pavliscsak knows this and knows there were no documents. In his zest to cover his lies, Mr. Pavliscsak has shown his willingness to go as far as to falsify government records, by back dating records. (As seen in E-Mail put in my medical record which was hand dated and signed by Mr. Pavliscsak as 3 Nov 00, being in E-Mail the header would have shown the true date, header was deleted from document.)
Statement 6, as you will see this statement is totally untrue. *See statement about accident reports, delay on purchase requests for safety equipment and denied purchase requests.

CONTRACT.. Although this was not a part of this document, I feel after finding out Fort Gordon management might tell untruths, you may want to reevaluate Special Counsel's decision on this matter.

(See OSC File No. MA-01-0767)

In attachment C1 you will notice contract was let pursuant to Title 42, Section 8287 of the United States Code even though EMCS was clearly a Government-in-Nature function as stated in C2. As can be seen in C3 pages 1 thru 4, Title 42, Section 8287 requires contractor to be paid from energy savings only. As can be seen in C4 (Utility Rate Schedules) DPW's resource manager worksheet to compute utility charges, UMCS Operations are charged as an addition to utility rates to figure on-post rates. This would not be allowed under 8287. Speaking to the DPW resource manager, he informed me that more than 95% of energy savings was going to pay the contract. Again under 8287 this would not be allowed since as stated on page 4 "(b) Authorized uses of savings.... Subsections (1) and (2). **(See CONTRACT pg. 1-7)**

I do not understand how they are able to doctor the records to prove energy savings when in C5 (Memorandum for Commanders, TRADOC Installations (DPWs), Subject: Facilities Energy Program), clearly shows Fort Gordon as having it's worst year of energy savings since the EMCS was started in 1986. (Also see attached articles under C5 showing history)

In C6 paragraphs 8 and 9, you can see that ESPC contracts are <u>not</u> recurring, and it should be clear by now, EMCS operations are recurring, thus falling under OMB Circular A-76 and due to GIN function not contractible. ERI/Noresco could have fulfilled all requirements of an ESPC contract by rebuilding the generators as they did, resetting the CBL (Utility Base Line for Cost), as was done. Both one-time non-recurring "projects" as required by 8287. From that actual energy cost savings could have been calculated for pay back over the period of the contract.

CLOSING STATEMENT

Provided by Reuben Fullbright only.

In reading over the report sent to me by your office, I could not help remembering the old saying, "If you can't dazzle them with brilliance, baffle them with B.S.". Of the 399-page report, 243 pages were material submitted by Noresco on their policies. The first issue, which needs to be addressed, is the fact that when complaints were filed, there was no contractor and the UMCS only referred to the operations before the illegal contracting out. Since the contractor took over they have made efforts to correct any and all deficiencies tasked upon them by government.

During IRAC's (Internal Review and Audit Compliance) (Frank Bennett and Greg Mims)"investigation", I made it clear that, the government UMCS operators were not referring to anything done by the contractor when we filed our case.

The thing, which upset me the most about IRAC's report is, I spent several days with them, answering questions, showing them problems and tasks we performed and supplying them with documentation of false statements made by management, which they made copies of. In his note to OSC, Mr. Mims says they could not get input from me because I was in the hospital. As you know Ms. Myers, I called you in June 2002, after they took my statements, and asked for a copy of the report, since they would not give me one.

Another section used to baffle the reader and make report only larger is the report from 249th Prime Power dated 12 Feb 97, which Mr. Pavliscsak used in his statement to prove refresher training. (See PG 22 of letters dated JUL 17 2002 note 2.and referred to in note 8.) I am sure he is talking about section 3.2 and 4.7 of the report. If you read the report in its entirety, it becomes clear that training was not intended for nor given to Fort Gordon UMCS personnel. (See section 4.4 and 5.3)

After reading this statement I asked Glenn Stubblefield, who was handling all power plant inspections and projects, to see his notebook titled EMD Annual Inspection Reports. He could not find the notebook and told me to check with Mr. Pavliscsak who said he did not know where it was. The reason I wanted this book was prior to OSHA's visit, I copied the contents; 7 Annual Inspection reports, 5 of which had a statement that UMCS operators needed training on power plants: I gave my copies to Floyd Gattis the OSHA inspector.

On 15 April 03 while reading Terry Smith's response to information, I noticed he said since OSHA did not do a follow-up after on-site inspection, Fort Gordon must have complied. This was not a true statement, we called OSHA at least 3 times and their final response was, Russ Blandin of Fort Gordon post safety is the OSHA liaison and is handling the listed issues.

After reading this I called OSHA to find out why there was never any follow up. Mr. Gattis was not in so I spoke with ******* who said he would take the information. During the conversation I told him I would be glad to show him where problems still existed if and when he came down. He then informed me it would be illegal for him to tell me, if his supervisor decided: if and when he would be coming. It would also be illegal to tell anyone from Fort Gordon also.

On the 16th I found out that OSHA had called and told Fort Gordon that there had been another complaint filed and Russ would be calling Pavliscsak to let him know when they will be here.

I can't help but feel, I have also been lied to by OSHA.

OSHA informed me they could not levy fines against the government like they do against private industry. Meaning it must be OK for the government to put employees at undo risk, but if private companies try it they will be fined by the same government that does not have to follow the rules. I personally see a problem with this picture.

With all the above items listed and documented over a several year period, the bottom line is all requirements listed were required prior to ever cranking the first unit. Had the training, PPE, safety equipment, SOPs, MSDS sheets and inspections been completed prior to operation, we would not be having these discussions. Also had all been provided, I would have known not to take fuel/oil/anti-freeze soaked clothes home to be laundered. An action that not possibly, but probably contributed to my wife's illness (cancer), which led to her death in 1998.

Also had the government provided respirators as stated by Mr. Pruietts survey, I would not be as likely to have the blood disorders which will more than likely result in my own death. I have had to have 2 by-passes in the last 2 years, not because of vascular disease but rather blood disorder.

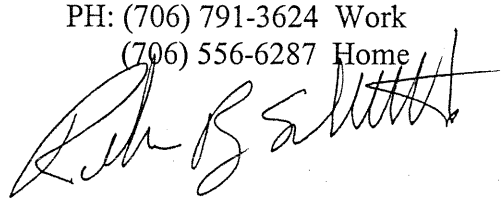
In ROI at top of document #5 I think changes can be made as follows:

A. None, Continue to delay, deny, lie and cover up.
B. None, Yet
C. As said above contracted out.

D. As far as IH and post safety are concerned, I think their failure to inspect and require all above mentioned safety equipment, PPE, SOPs and training, prior to start-up of Fort Gordon Power Plant operations, falls under simple Reckless Endangerment. As far as Fort Gordon DPW is concerned, I think their actions of absolutely refusing to follow rules, laws and regulations, and their blatant lies and cover-ups even after they were ordered to by OSHA shows a case of Malice With Intent To Harm.
E. For the above mentioned actions, and as known these documents have been sent through the White House, I would like your assistance in how to get in touch with a special prosecutor. I don't know if they are a part of OSC or an independent agency. Please provide any information you can.

I want to apologize for the length of this document but it was the only way I could explain issues where I thought you could understand. If you have any questions, issues or concerns, Please call and I will try to explain them to you.

Thank You,
Reuben Ray Fullbright
PH: (706) 791-3624 Work
(706) 556-6287 Home



REPORT OF INVESTIGATION

Whistleblower Allegations —
Directorate of Public Works, Utility Monitoring Control System,
Fort Gordon, Georgia

1. Summary of the information with respect to which the investigation was conducted.

Seven current or former employees of the Directorate of Public Works (DPW), Fort Gordon, Georgia, brought a number of allegations before the Office of Special Counsel. These allegations claimed a number of unsafe practices in the operation of the Utilities Monitoring and Control System (UMCS) in DPW. Specifically, it is alleged:

— that management over the UMCS disregarded safety guidelines and laws;

— that unsafe practices were allowed over an extended period, both before and after the UMCS function was contracted to the contractor ERI Services, Inc.; and

— that these unsafe practices continue into the present.

2. Description of the conduct of the investigation.

Fort Gordon's investigation of these allegations was conducted by Mr. Terence Smith, Deputy to the Garrison Commander, and Messrs. Frank Bennett and Greg Mims, Auditors, Internal Review and Audit Compliance Office, Fort Gordon. The process used to investigate the whistleblowers' allegations was to identify each allegation and devise a plan to determine its validity. A table is attached, reflecting this part of the process. After breaking down the allegations, the investigators concentrated their efforts on whether the conditions still exist at the present time, rather than whether they existed prior to May 1, 2001, when UMCS was still an in-house government operation. Their review consisted of a visit to the generator site and interviews with Mr. James Pavliscsak, Engineer Technician, Fort Gordon: Mr. Curt Oglesby, Chief of the Facilities Branch, Fort Gordon; Mr. Glenn Stubblefield, Energy Engineer, Fort Gordon; Ms Sargent, Contracting Officer, Huntsville, Alabama; Mr. Pete Batayias, site manager for Noresco (formerly ERI Services Inc.); and Mr. Reuben Fullbright, one of the whistleblowers. The allegations involved four main areas: safety, training, certifications, and management oversight of the Noresco contract. The narrative below addresses each of these four areas.

3. Summary of evidence obtained from the investigation.

A. Safety.

(1) Allegation: UMCS operators were not provided safety clothing and equipment, standing operating procedures (SOPs), or lock-out/tag-out procedures. When locks and keys were provided, management violated 29 CFR 1910.147 by maintaining a copy of each key.

(2) Fort Gordon Review: In accordance with the requirements of the UMCS contract, Noresco provided and instituted a Site Safety Plan (Encl A) that addresses all aspects of this allegation. The implementation of such a plan was one of the requirements that ERI (now, Noresco) had to satisfy in order for the contract to be awarded. In addition, Fort Gordon's investigators obtained documentation that shows all seven (7) whistleblowers as having received personal protective equipment (PPE) (Encl B), training, and an SOP on lock-out/tag-out procedures in November 2000 (Encl C).

Review of 29 CFR 1910.147 (Encl D) did not indicate that management could not maintain a copy of each key provided to the UMCS operators. The regulation states, at paragraph 1910.147(e)(3), "When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer....provided that the employer verifies the employee who applied the device is not at the facility, makes all reasonable effort to contact the employee to inform them the device has been removed, and ensuring the employees has this knowledge before returning to the facility." In its Standards Interpretation and Compliance Letters website dated February 28, 2000 (Encl E), the Occupational Safety and Health Administration (OSHA) states that the use of a master key is appropriate if the employer follows the instructions quoted above. Therefore, UMCS management at Fort Gordon has not violated OSHA standards. The copied keys were not maintained by the UMCS operators' immediate supervisor, Mr. Pavliscsak, but were stored in his supervisor's office. Currently, Noresco has proper lockout/tagout procedures that include special procedures for use of extra keys only when the primary keyholder employee is unavailable and a lockout/tagout device has to be removed. (See Encl T.) Fort Gordon's investigators visited the generator site and visually observed face shields, long vinyl gloves and aprons, and headgear, all of which was prominently displayed and available for use by the UMCS operators (Encl F). In addition, the investigators observed posted lock-out/tag-out reminder signs in the generator vans.

It should be noted that both under in-house government operation and under contractor operation, the UMCS operators (i.e., the whistleblowers) were not required by job description to maintain the generators or perform any maintenance on the high voltage equipment.

(3) Allegation: Another safety-related allegation that has been raised is that Fort Gordon did not correct all of the violations found in an on-site Occupational Safety and Health Administration (OSHA) inspection. An excerpt of the OSHA Notice of Unsafe or Unhealthful Working Conditions, dated October 13, 2000 and a response, is enclosed (Encl G).

(4) Fort Gordon Review: The Fort Gordon staff took action on each of the five violations cited by OSHA, and the Fort Gordon Garrison Commander reported back to OSHA by letter (Encl G) addressing each of the five violations and corrective actions and providing copies of supporting documentation. There has been no subsequent communication from OSHA to indicate that Fort Gordon's report of corrective actions was anything less than what OSHA expected.

The whistleblowers alleged that OSHA informed Fort Gordon management that the on-site emergency showers and eyewashes did not meet OSHA's water pressure standard of producing 20 gallons of water per minute, citing 29 CFR 1910.151(c) and ANSI standard Z358.1-1998, yet management never corrected this problem. However, in the OSHA Notice of Unsafe or Unhealthful Working Conditions, dated October 13, 2000, there was no mention of this issue. The Fort Gordon investigators observed the operation of the on-site showers and eyewashes, and they appeared to be fully functional. The installation Director of Public Works will be directed to ensure that all operational standards are met, in coordination with the Signal Branch Safety Office and the Industrial Hygiene Office.

B. **Training**

(1) Allegation: The UMCS operators repeatedly requested additional training for operating high-voltage equipment. In addition, Noresco has not provided training for operation of dangerous high-voltage equipment.

(2) Fort Gordon Review: In March 1996, the 3rd Platoon, B Company, 249th Engineer Battalion (Prime Power) from Fort Benning, Georgia, performed an annual generator inspection of the Fort Gordon generator plant. Their report ((Encl H) (Annexes omitted)) stated that the overall condition of the plant was good and that the personnel responsible for operation and maintenance of the plant were doing an excellent job. During their annual inspection that was conducted January 21 through February 13, 1997 (Encl I), Prime Power stated, "The condition of the plant is good. SSG [Staff Sergeant] Smith, 201st MI BN [Military Intelligence Battalion], Fort Gordon, GA, acts as liaison between EMCS and the loan program. He is doing an excellent job in ensuring that the required maintenance is done and that the EMCS [Energy Monitoring and Control System] personnel have been properly trained." SSG Smith was a fully trained generator repairman who was assigned as the maintenance worker for the plant. He worked at the plant three days a week. The February 1997 Prime Power report also states that a six-day EMD Refresher Training was given to the EMCS personnel.

In November 1999, all seven whistleblowers received training titled "Satellite Accumulation Point Training" (Encl J). This course consisted of EPA-type training on handling hazardous waste materials such as oil rags, used oil, and antifreeze. Completion certificates for this training are on file for all seven of the whistleblowers.

In March 2000, all seven whistleblowers received on-site training provided by Engine Systems, Inc., in the following areas: (a) basic diesel engine course, (b) power generation course, and (c) electrical safety course (Encl K). All seven whistleblowers satisfactorily completed the training, and completion certificates are on file to document the training.

On 14 November 2000, UMCS employees attended a class on lockout/tagout procedures. The Fort Gordon investigators obtained a signed attendance roster, completion certificates, and a signed statement that all seven whistleblowers received a copy of the Standing Operating Procedures (SOP) for lockout/tagout procedures (Encl L). In addition, the

employees were instructed on personal protective equipment (PPE). The Fort Gordon investigators obtained a signed class roster and a copy of the test each employee completed on PPE.

The investigators also received documentation showing that in December 2001, Noresco provided its employees with its ten-hour annual safety course, which consisted of the following: Introduction to OSHA, Electrical Safety, Fall Protection, Material Handling, Storage and Disposal, Stairways and Ladders, Scaffolds, Excavation, Hand and Power Tool Safety, Welding and Cutting, and Hazardous Communication and Asbestos (Encl M). In addition, since January 2002, Noresco has held weekly, documented safety meetings where employees can raise safety concerns. Such meetings also were conducted from June 2001 to January 2002, but those meetings were informal and often one-on-one and were not documented.

It should be noted that the training needed by UMCS operators is not the same as the training required for UMCS maintenance and repair. The Scope of Work for the Noresco Contract reflects the operating requirements of the UMCS Operations, UMCS Maintenance and Repair Services, UMCS Exclusions (i.e., items not included in the contract), Generator Plant Operations and Maintenance, Power Plant Exclusions, Hours of On-Base Coverage, and Hours of Remote UMCS Coverage. Review of these contract requirements (Encl N) and discussions with Mr. Pete Batayias, site manager for Noresco, indicate that UMCS maintenance requirements are performed by maintenance personnel and not by operational personnel. Additionally, Noresco is responsible for the high-voltage equipment, but it contracts repairs on that equipment to commercial vendors qualified in high-voltage repair. The operators do not do this repair work.

C. Certifications

(1) Allegation: Operators should be licensed and certified in accordance with Army Regulation (AR) 600-55 and AR 420-49. Management maintained that the provisions of these AR's were not mandatory. Even if compliance with these regulations is not mandatory, operation of the high voltage machinery without proper training poses a serious threat to the operators' safety.

(2) Fort Gordon Review: AR 600-55, Chapter 7-1a(1) and para 7-2b (Encl O) requires all military personnel and Army civilians to have an OF 346 and demonstrate their proficiency in order to operate electrical power generating equipment. In addition, general categories of training required are listed in TB 600-1, Chapter 11, change 3-27 (Encl P), and training should be geared to specific equipment . Fort Gordon's investigation showed that this training was provided by Prime Power when the equipment was installed in 1995, and annual update training was provided during site visits by Prime Power. (See Encl I.) While the investigation found no evidence that an OF 346 was issued to the whistleblowers, the documented training received complies with TB 600-1 operator training requirements. (Compare Encl P with Encl I.) Since operation of the plant is currently performed by Noresco (contractor), rather than by military or Army civilians, issuance of OF 346 to the

whistleblowers at this time would not be a remedy. AR 420-49, paragraph 2-4 (Encl Q), states that utility plant operators and maintenance personnel will be provided sufficient training to operate and maintain the plant, and it states that the personnel will meet Federal, state, and local certification requirements. Despite numerous inquiries to industry experts, Fort Gordon's investigators were unable to identify any Federal, state, or local certification requirements that apply to personnel in operator-type positions, such as the whistleblowers' positions, who operate equipment such as that at Fort Gordon. Fort Gordon's investigators are confident that the training being provided and procedures being followed by Noresco are appropriate. The installation will continue to research certification requirements and will ensure contractor compliance.

D. **Oversight of the Noresco Contract**

(1) Allegation: There is a lack of involvement and enforcement on the part of Government officials responsible for overseeing the Noresco contract. Noresco has no adequate SOP's.

(2) Fort Gordon Review: Since May 2001, when the UMCS function was first contracted, performance under the contract has been monitored by Fort Gordon's Contracting Officer's Representatives (CORs). The first COR was Mr. Glenn Stubblefield. The second COR was Mr. James Pavliscsak, who was appointed as COR in July 2001. The responsibilities of these CORs included monitoring and inspecting contractor performance, verifying that the contractor performed the technical requirements of the contract, notifying the contractor of deficiencies, and directing action to effect corrections. A draft Government Quality Assurance Plan has been drafted and is currently being staffed for comment and approval. (The appointment orders of the CORs and the draft Government Quality Assurance Plan are shown at Encl R.) As a key part of the contract oversight process, government employees, contract base operations employees, and Noresco management meet weekly to discuss contract issues. The contract began in May 2001, and these weekly meetings began on July 9, 2001. Documentation has been obtained providing detailed support for 28 of these meetings since that date, and continuing through the present date (Encl S, Showing the first and the most recent meetings). All elements of the contract are discussed at these meetings, including equipment, operations, maintenance and repair, and the safety program. (See notes from meeting #28, at Encl S.) Management informed the investigators that SOPs had formerly been in use for both the in-house government operation and the initial contract operation. The investigators received copies of these historical, superceded SOPs, but the SOPs were undated and the investigators could not confirm the dates that the SOPs were actually in effect. The investigators were able to view Noresco's current SOPs. The excerpts of these SOPs that are enclosed (Encl T) address the critical issues raised by the whistleblowers; i.e., personal protective equipment, lockout/tagout procedures, and safety in general.

4. **Listing of any violation or apparent violation of law, rule, or regulation.**

No such violations have been identified.

5. **Description of any action taken or planned as a result of the investigation.**

A. **Any changes in agency rules, regulations, or practices?** None.

B. **Any restoration of an aggrieved employee?** None. Not applicable.

C. **Any disciplinary action against an employee?** None.

D. **Any referral to the Attorney General of evidence of criminal violations?** None.

E. **Any other action taken or planned?** As mentioned in paragraph 3D(2) above, a draft Government Quality Assurance Plan has been drafted and is currently being staffed for comment and approval. We are also continuing to search for any additional Federal, state, or local standards, as mentioned in paragraph 3C(2) above. In addition, the installation Director of Public Works will be directed to ensure that all standards are met for the operation of emergency showers and eyewashes, as stated in paragraph 3A(4).

J. TERENCE SMITH
Deputy to the Garrison Commander

Notes ROI - 2
P 19

1. Please provide me the electrons of the Report of Investigation (ROI). I'd like to extract/cut and paste from it when I prepare the final report.

The electronic ROI is attached to this e-mail.

2. Please have the documents/attachments/tabs listed in a Table of Contents for easy reference.

A Table of Contents has been prepared and is now included as part of the ROI.

3. ROI, page 1, paragraph 2, line 8 - isn't it inconsistent to state "all information available regarding operations prior to that date, however, indicated that safety guidelines and laws were met" when OSHA's inspection resulted in the issuance of citations. Maybe this should be reworded.

This sentence has been removed from the ROI.

4. ROI, page 2, paragraph 3A(2) - even though the UMCS operators "were not required by job description to maintain the generators or perform any maintenance on the high voltage equipment," but, were they ever asked to perform such work? Please address this.

This statement is accurate, although the word "generators" may be inartfully used. The power generation system consists of the power plant (engine), the transformers (where the high voltage is), and ancillary control devices. Employees were asked to perform minor operator maintenance on and the power plant (engine) and the ancillary equipment, such control devices/switches and fuses. This equipment exposes the operator to what is, at most, medium voltage equipment. The vast majority of the voltage is normal household current (110 or 220 V). Safety precautions were in place, the most important of which was that the power be disconnected from the equipment.

Members of Fort Gordon's Internal Review Office met Mr. Reuben Fullbright at the Generator Plant and asked him to show them the equipment on which he was asked to perform maintenance. The inspectors took pictures of the equipment and below each picture, noted the maintenance Mr. Fullbright says he performed and the voltage concerns (Tab U). Mr. Pete Batayias, Supervisor, Noresco, and Mr. James Pavliscsak, UMCS Contracting Officer Representative in the Directorate of Public Works both concurred with the type of maintenance performed and voltage concerns. Additional comments are warranted in two areas. First, The potential transformers at the generator breaker panel, where fuses were replaced, showed the greatest voltage concern, at 4160 volts. This voltage, the highest encountered by the whistleblowers, is not considered "high" voltage; it is "medium voltage." To replace the fuses, the power was (and is) required to be turned off. Only qualified electrical workers were (and are now) authorized or allowed to work on "high" voltage equipment. In addition, only qualified electrical workers were (and are now) allowed to work with energized equipment. Second, the only operator maintenance done near the transformers that produce the electricity was on the engine (checking fluids, etc.) or on control boxes, like the governor box where the voltage is 120

volts. Thus, the whistleblowers were not required, nor asked, to perform maintenance on high voltage areas or equipment that was energized.

All seven whistleblowers obviously worked *in the area around* some high voltage equipment. However, they met OSHA standards to be in that area by demonstrating proficiency at operator level tasks of the UMCS. In OSHA's Standard Interpretation of Standard Number 1910.269, OSHA's reply to Question 38 (TAB V) outlines the training required for employees in a substation area. It states "Employers may train employees as qualified employees for the purpose of entering and working within restricted areas of generating stations and substations. While the training for these employees must meet para 1910.269(a)(2)(ii), such training need not be as comprehensive as the training provided normally to a qualified electrical worker. These 'qualified' nonelectrical employees must have the following minimum training:

(1) They must know what is safe to touch and what is not safe to touch in the specific areas they will be entering...,
(2) They must know what the maximum voltage of the area is...,
(3) They must know the minimum approach distances for the maximum voltage with the area..., and
(4) They must be trained in the recognition and proper use of protective equipment (note: only fully qualified electrical employees may install insulating equipment on energized parts) that will be used to provide protection for them and in the work practices necessary for performing their specific work assignments within the area...."

In OSHA's response to question 3 (TAB W) regarding an employee that has many years of on-the-job training but no record of specific training, they state: "An acceptable way of certifying training would be for the employer to certify that an employee has completed on-the-job training that complies with the applicable requirements under paragraphs 1910.269(a)(2)(i) and (a)(2)(ii) (TAB X). This certification can only be given when the employee demonstrates proficiency in the work practices involved." All UMCS employees had some documented training as well as substantial on the job training. As a result, they were properly certified to be in the area of the power generating equipment.

5. ROI, Tab B - did the individuals ever receive any other Personal Protective Equipment Training prior to 11/00 (which is post OSHA inspection)? I see that there were other training provided to them pre-OSHA inspection as referenced in the ROI, paragraph 3B(2).

Mr. George Pruitt, Chief, Occupational Health Office, EAMC stated PPE training was performed prior to 11/00 but to date, has been unable to provide documentation. Mr. Pruitt stated that a Safety Tape (VCR) was developed prior to 11/00, and Mr. Pavliscsak was the one of the first supervisors to check it out to conduct training with the UMCS operators (TAB Y).

6. ROI, Tab C - were there any SOPs issued/received by the individuals prior to the 11/~~00~~ date?

We cannot find any complete, dated SOP's, nor documentation that shows the individuals received an SOP prior to 11/00. Jim Pavliscsak has an SOP and has stated it was valid and available for employee use prior to 11/00. Mr Pavliscsak stated the standard practice was to have SOP's posted on the wall at UMCS, and employees would make pencil corrections and annotations when procedures changed. Periodically, the SOP would be updated. We found evidence of this practice on a document entitled UMCS SOP for Spills of Hazardous Materials, dtd 28 Aug 95 (TAB Z). We have included the undated SOP provided by Mr. Pavliscsak as an attachment (TAB Z1).

7. ROI, Tab G - Reference is made in the Fort Gordon reply to DOL to each of the citations. There is a reference made to 3/6/00 safety and health inspection, evaluations for Risk Assessment of 8/7/00 and Noise Hazards assessment of 10/4/00 but the documents aren't attached. Please provide.

Copies of the three documents referenced above are provided. (TAB Z2).

8. ROI, Tab S - has there been an update on the status of the Safety SOP that was last referenced as being under review back on 2/20/02?

The Safety SOP referenced in the weekly meeting documentation is still being updated. The process is somewhat slower than a normal SOP because the document is being negotiated with a contractor who must involve their management in decisions. The process has worked as follows: Noresco wrote the SOP and gave it to Ft Gordon's COR for comment. Fort Gordon leadership had four comments that needed correction. The comments went back to the Contracting Officer and she forwarded them to Noresco management. Her suspense to Noresco is 28 Jun 02. We expect to have their comments and an updated and approved SOP NLT 15 July 2002. Mr. Pavliscsak informs us Noresco's employees already have a copy of the draft SOP and are using it.

P22

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SIGNAL CENTER
AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280

REPLY TO
ATTENTION OF:

JUL 17 2002

MEMORANDUM FOR WHOM IT MAY CONCERN

SUBJECT: Additional Information on UMCS Safety

1. I am writing this memorandum to provide additional information that may be helpful in evaluating the ongoing Office of Special Counsel Investigation regarding operations and safety at the UMCS.

2. **Safety Equipment**: The UMCS section was organized in 1987 and employees always had access to safety equipment. The procurement procedures were conducted by the UMCS section as there was no other means to accomplish this. All employees were empowered to purchase and receive at the post level with signature cards issued on my hand receipt. Physicals were conducted and prescription safety glasses were issued at EAMC. All safety items including prescription glasses were purchased by DPW. I reviewed each purchase and had only two problem areas. Both within the last 3 or 4 years. One was the purchase of safety footwear used on a limited basis or unsuitable for the job. When confronted with this problem I required that limited use footwear remain on the job site in the employee's locker. I refused to approve unsuitable footwear that employees requested because they wanted it for use off the job. They were told to reorder. The other problem was prescription safety glasses. Some employees attempted to order ultralight wire rim fashion glasses. I had prescriptions that were changed by employees and attempts to bypass normal approval by asking another division card holders to place the order. However, it came to light when the card holder requested purchase approval.

3. **Training**: Training was ongoing from day one --not only for employees but myself also. Only one employee had ever seen an InfoScan system before coming to work in the section. We never had a complaint until the people providing generator operators training bragged about the Army's schools and the "big money" that was available for Army trained technicians. I started getting request for 2-year generator and high voltage schools at Fort Belvoir. These request were turned down. I personally talked to soldiers involved in the operator training and civilians with the military's rail shop. I was assured that the UMCS operators had the training required to do the job. We also provided other training. For instance, the two employees currently working as inspectors at EPS at a higher pay rate (with the potential to go much higher) received their COR training at Fort Benning while in the UMCS section. We provided opportunities for additional training requested such as software programs, writing, etc.

4. **SOP's**: I found about 50 SOP's still on an old computer. They date back to 1988 and about 10 for the generators dating back to 1996. I no longer have many of the newer ones. They were turned over to the contractor when he took over but I noticed some still posted at the generator site less than a month ago. Procedures and guidelines were post in a book in the master control

room in addition generator related ones were posted at the generator site. All were updated as needed with pen and ink changes and retype periodically. There were also changes and instruction sent by email and kept in another book called Lessons Learned.

5. **Occupational Health**: Employees were part of the health screening and safety program here on post. When a question came up I went to them requesting the last 3 years in their records for employees. OSHA did not find any major problems and asked in the out briefing which was attended by all employees present including the Union representative. One of the major issues was footwear and OSHA said "although there was a delay in ordering because of policy clarifications no one was without safety footwear". He pointedly ask "isn't that true? Was anyone without safety shoes?" There was not one complaint from the employees or the Union President.

There have been questions about documentation going back before OSHA. There were numerous methods for documentation. However with the elimination of items on the 7B card, centralized record keeping, relocating, reduction of staffing, changes in 201 file record keeping and a constant state of flux I can not furnish complete documentation to you. I keep many records in my files at 2141 and 2133. These were left there for a period of time with me planning to go through them when time permitted. However someone went in the buildings and rifled all records, removed furniture items etc.

6. I can assure you that we did the right things and employees were my number 1 priority.

James V. Pavlisesch

JAMES V. PAVLISCSAK

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
MANPOWER AND RESERVE AFFAIRS
111 ARMY PENTAGON
WASHINGTON, DC 20310-0111

December 20, 2002

REPLY TO
ATTENTION OF

The Honorable Elaine Kaplan
Special Counsel
U.S. Office of Special Counsel
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

Re: Transmittal to Office of Special Counsel of Report of Investigation of Whistleblower Allegations, Investigation File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Ms. Kaplan:

Enclosed with this letter is the Army's Supplemental Report of Investigation into allegations of violations of law, rule or regulation and a substantial and specific danger to public health and safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia (Tabs A-J). Ms. Catherine McMullen, Chief, Office of Special Counsel (OSC) Disclosure Unit, requested that Army interview all of the whistleblowers since the initial Army Report of Investigation submitted to you in August 2002 did not indicate that all of the whistleblowers had been interviewed. Brenda Reed, Charles Poston, Dorsey Combs, Gordon Griffin, Neal Skvarca, and William Ellis were interviewed and their statements are included in this transmission. Reuben Fullbright was not interviewed since he was hospitalized and not at work.

I have reviewed the supplemental documents to the initial Report of Investigation and concur with the findings stated therein. My review indicates that these additional statements provided by the above named whistleblowers and other supplemental documentation lead me to still conclude that the entire Army investigation was conducted in a thorough, fair, and impartial fashion. However, there was one incident mentioned in the statement of Brenda Reed that I would like to specifically address. The Fort Gordon Staff Judge Advocate Office was asked to conduct an additional inquiry into her allegation that she received a written reprimand and suspension threat for expressing her concerns. (Tab B). Additional documents to address this matter were provided that indicated that she received a reprimand for failure to follow instructions by her supervisor. (Tab H). This particular allegation was part of the on-site OSC investigation that was undertaken by OSC investigator Mr. Dale Paris in July 2001 into allegations that the whistleblowers' positions were abolished in retaliation for disclosures about safety concerns to the Occupational Health and Safety Administration. OSC completed its investigation of that allegation, closed its file and concluded that it would not pursue that

Printed on Recycled Paper

investigation any further. (Tab I). Therefore, as a result of this case closure, the November 29, 2001 OSC request for investigation indicated that it was only requesting Army to look into its concerns that there was a substantial likelihood that the same whistleblowers have disclosed violations of law, rule, or regulation and a substantial and specific danger to public safety in the Fort Gordon Directorate of Public Works (Tab J).

It appears that the Army has properly addressed the allegations of violation of law, rule or regulation or abuses of authority and a substantial and specific danger to public health and safety by officials at Fort Gordon that have been raised by the seven whistleblowers. The Report is internally consistent, its conclusions are supported by substantial evidence, and nothing has been brought to my attention that would justify overruling or modifying the conclusions of the initial Report.

Therefore, on the basis of this supplemental Report, the Army does not plan to take any further action regarding this matter other than those actions noted above.

This letter and enclosures are submitted in satisfaction of my responsibilities under 5 USC 1213(c) and (d). Please direct any questions you have concerning the conduct of the Report of Investigation in this case to Ms. Cassandra Tsintolas Johnson, at 703-697-6493.

Reginald J. Brown
Assistant Secretary of the Army
(Manpower and Reserve Affairs)

Enclosures

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SIGNAL CENTER
AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280

REPLY TO
ATTENTION OF:

ATZH-JA

17 December 2002

MEMORANDUM FOR Office of the General Counsel, ATTN: Ms. Cassandra T. Johnson, 104 Army Pentagon, Room 2E725, Washington, DC 20310

SUBJECT: Statements of Complainants, Fort Gordon OSC Investigation

1. Enclosed are the originals of the statements I faxed to you this date. I have reviewed Mr. Smith's response and agree with him that there is no information in the statements that would require amending the installations previous responses.

2. If any further information is needed, please contact me at (706) 791-1854/3148 or by e-mail at lescaulm@gordon.army.mil. Thanks for your help with this matter.

Maurice A. Lescault

MAURICE A. LESCAULT, JR.
LTC, JA
Deputy Staff Judge Advocate

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON
U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5000

REPLY TO
ATTENTION OF:

ATZH-GC

13 December 2002

MEMORANDUM FOR Staff Judge Advocate, Attn: LTC Lescault

SUBJECT: Statements By Former UMCS Personnel Concerning Safety Violations

1. Reference: enclosed memo from Mr. Gregory W. Mims, with attached statements.

2. Having reviewed the enclosed Internal Review opinion, with the attached statements by Brenda Reed, Charles Poston, Dorsey Combs, Gordon Griffin, Neal Skvarca, and William Ellis (former UMCS personnel), I concur with our original opinion in the Government's rebuttal and stand by the previous documentation and report that Fort Gordon sent to the Office of Special Counsel. We are following the plan of action in our report. Fort Gordon continues to work the Government Quality Assurance Plan, which has been bottlenecked at the Huntsville Contracting Office. The Director of Public Works tested the emergency showers and eyewashes to ensure they were working in accordance with standards. We will always strive to ensure Fort Gordon is in compliance with Federal, state, and local safety standards.

Encl
As

J. TERENCE SMITH
Deputy to the Garrison Commander

STATEMENTS BY FORMER UMCS PERSONNEL CONCERNING SAFETY VIOLATIONS

On 6 November 2002, I sent an email to the former UMCS personnel who had filed the "whistleblower complaint" and informed them that a statement that tells their side of the story was required by Office of Special Counsel. The purpose was to ensure that all aspects of their complaint had been heard and explored by management. They were told that either Frank Bennett or myself (Gregory Mims) would set up a meeting with each of them. Over the next month, we met with everyone except Reuben Fullbright, who was hospitalized and not at work. At the meeting, we presented the OSC letter the installation received that stated the allegations. In addition, I provided a sheet that synopsized the five allegations (Attachment 1). This was done to give some structure to their statements. None of the personnel expressed any negative concern about preparing the statements.

I have reviewed the attached statements (Attachments 2-7) by Brenda Reed, Charles Poston, Dorsey Combs, Gordon Griffin, Neal Skvarca, and William Ellis. Their statements parallel their original allegations, however, I support the Government's rebuttal and the documentation and report we sent to OSC. Ft Gordon continues to seek approval of the Government Quality Assurance Plan, which has been held up at the Huntsville Contracting Office. The Director of Public Works tested the emergency showers and eyewashes to ensure they were working IAW standards. There was no new information in the statements.

Gregory W. Mims
Auditor, IRAC

Utility Monitoring Control System
Allegations

1. UMCS operators were not provided safety clothing and equipment, standing operating procedures (SOPs), or lock-out/tag-out procedures. When locks and keys were provided, management violated 29 CFR 1910.147 by maintaining a copy of each key.

2. Fort Gordon did not correct all of the violations found in an on-site Occupational Safety and Health Administration (OSHA) inspection.

3. The UMCS operators repeatedly requested additional training for operating high-voltage equipment. In addition, Noresco has not provided training for operation of dangerous high-voltage equipment.

4. Operators should be licensed and certified in accordance with Army Regulation (AR) 600-55 and AR 420-49. Management maintained that the provisions of these AR's were not mandatory. Even if compliance with these regulations is not mandatory, operation of high voltage machinery without proper training poses a serious threat to the operators' safety.

5. There is a lack of involvement and enforcement on the part of Government officials responsible for overseeing the Noresco contract. Noresco has no adequate SOP's.

Please give us your side of the story on these allegations.

Atch 1

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

November 29, 2001

The Special Counsel

The Honorable Thomas E. White
Secretary of the Army
The Pentagon
Washington, D.C. 20350-1000

Re: OSC File Nos. DI-01-0572, DI-01-0573, DI-01-0574, DI-01-0575, DI-01-0576, DI-01-0577, and DI-01-0578

Dear Mr. Secretary:

The U.S. Office of Special Counsel is authorized by law to receive disclosures of information from federal employees alleging violations of law, rule or regulation, gross mismanagement, gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety. 5 U.S.C. §§ 1213(a) and (b). As Special Counsel, if I find, on the basis of the information disclosed, that there is a substantial likelihood that one of these conditions exists, I am required to advise the appropriate agency head of my findings, and the agency head is required to conduct an investigation of the allegations and prepare a report. 5 U.S.C. §§ 1213(c) and (g).

For the reasons set forth below, I have concluded that there is a substantial likelihood that information provided to the Office of Special Counsel by former Utility Monitoring Control System Electronic Industrial Controls Operators Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca discloses violations of law, rule or regulation and a substantial and specific danger to public health or safety arising out of actions by officials at the Department of the Army, Directorate of Public Works (DPW), Public Works Division (PWD), Utility Monitoring Control System (UMCS), Fort Gordon, Georgia. Accordingly, I am referring this information to you for an investigation of the allegations described below and a report of your findings within 60 days of your receipt of this letter.

The Information Disclosed

As noted, the relevant information was provided to the Office of Special Counsel by former UMCS Electronic Industrial Controls Operators, WG-2606-11, Reuben Fullbright, Brenda Reed, Gordon Griffin, William Ellis, Charles Poston, Dorsey Combs, and Neal Skvarca[1], who have consented to the release of their names.

[1] Currently, the whistleblowers are employed in the following positions at Fort Gordon: Mr. Fullbright is a utilities sales clerk in the Facilities Branch, PWD, DPW; Mr. Ellis and Mr. Skvarca are construction representatives in Engineering Planning and Services, PWD, DPW; Mr. Poston works as a

The approximate duration of each operator's period of employment at UMCS is as follows: Mr. Fullbright, 12 years; Ms. Reed, 6 years; Mr. Griffin, 16 years; Mr. Ellis, 6 years; Mr. Combs, 14 years; Mr. Poston, 6 years; and Mr. Skvarca, 4 years.

The whistleblowers allege that, throughout their period of employment at UMCS, management disregarded safety guidelines and operator training requirements. Although these violations began when UMCS was run by in-house personnel (prior to May 1, 2001), most of them continue to the present day, when operations are under the control of private contractor ERI Services, Inc. (ERI). The whistleblowers allege that DPW officials who have oversight responsibility for the contract are aware that the contractor is violating these regulations and requirements, yet they fail to enforce the contractor's compliance. The whistleblowers assert that management's failure to enforce these safety guidelines and training requirements poses a serious threat to the safety of UMCS employees.

The background of the whistleblowers' allegations is as follows:

UMCS, supplemented by power from Georgia Power Company, supplies electricity to all of Fort Gordon. It consists of three 4500kw power plants, each comprised of three 1500kw electric generators that are powered by several 6-cylinder diesel engines. The power plants produce a 4160-volt electrical current. UMCS plant operators are responsible for manually operating the electrical generators, managing and distributing power demands among the different generators, regulating the flow of electricity from the power plants, monitoring the diesel engine instrument control panels, monitoring the heating and air conditioning systems, and keeping maintenance records and energy consumption logs. In the course of performing these duties, the operators often have to perform minor maintenance and repairs on the generators and engines.

Prior to May 1, 2001, UMCS operations were performed in-house by the seven whistleblowers. During that time, the operators repeatedly made requests to their team leader, Mr. Pavliscsak, Engineer Technician, GS-802-11, to their second-line supervisor Curtis Oglesby, Chief of the Facilities Branch, and to the Post Safety Office that (1) they be provided additional training for operating the high-voltage equipment, (2) that they be issued adequate protective clothing and safety equipment, and (3) that UMCS institute and follow clear, written Standard Operating Procedures (SOPs), including a procedure for lockout/tagout functions.

---

target devices repairer at Range Control, Directorate of Plans, Training, and Mobilization; Ms. Reed has retired from Federal service; and Mr. Griffin and Mr. Combs have retired from Federal Service and now work as UMCS operator mechanics for contractor ERI, Services at UMCS, PWD, DPW.

The Special Counsel

The whistleblowers state that they first asked management for further training in 1995, when UMCS acquired new 4500kw power plants. They allege that at that time they were only given a short 30-minute demonstration before they were expected to operate and maintain this dangerous high-voltage machinery. Among the seven operators, only Mr. Poston had prior training and experience working with electrical power generating equipment.

In 2000, after the operators had repeatedly requested training for five years, management provided them with a two-day training class, conducted by contractor Engine Systems. However, the whistleblowers report that the instructor of the class informed them that the two-day class only offered a brief introduction and overview, and taking it would not qualify them to operate and maintain the generators.

According to Army Regulation (AR) 600-55, paragraph 7-1, and AR 420-49, paragraph 2-4, any employee who operates machinery requiring over 500 watts of power must be licensed and certified in accordance with Federal, state, and local requirements. As UMCS operators work with nine 1500kw generators, it appears that they are subject to these licensing requirements. The whistleblowers allege, however, that their supervisors and the Post Safety Office have advised them that the qualification requirements in AR 600-55 are not mandatory, but instead they merely "serve as a guideline." However, even if management's stated position is correct and compliance with this regulation is not mandatory, the whistleblowers nevertheless contend that operation of this high-voltage machinery without proper training poses a serious threat to the operators' safety, exposing them to possible electrocution.

The operators also allege that they repeatedly requested adequate safety equipment and heavy-duty personal protective clothing, such as rubber aprons, electrical safety gloves, protective glasses, and safety shoes; however, management was slow to honor these requests, and only supplied some of the requested equipment. According to the whistleblowers, this safety equipment and protective clothing was necessary because, in the course of monitoring the diesel engines and power generators, they were regularly exposed to high voltage electricity and often handled corrosive battery acid, oil products, diesel fuel, and antifreeze. OSHA guidelines at 29 CFR § 1910.132(a) provide that protective equipment must be used when potentially hazardous conditions are present. Furthermore, adequate electrical protective equipment and clothing should meet OSHA standards set forth at 29 CFR 1919.137 and comply with American National Standards Institute (ANSI) guidelines. The whistleblowers state that management generally refused to order safety equipment for lack of funds. When management did order safety equipment, it ordered less expensive, noncompliant equipment that failed to provide adequate protection.

The whistleblowers allege that, in August 2000, Mr. Pavliscsak issued them locks and keys for performing lockout/tagout functions, and he insisted on retaining copies of each operator's key. Ms. Reed explains that "lockout/tagout" procedures are designed to protect operators from electrocution while they perform maintenance on high-voltage electrical equipment. Each operator is given a unique lock to the control panel to prevent coworkers from accidentally switching on the 4160-volt electrical current while the operator is working on a generator. According to OSHA regulation 29 CFR § 1910.147 and industry practice, each lock should have only one key, and that key should remain in the sole possession of the operator to whom it belongs. Ms. Reed asserts that Mr. Pavliscsak's decision to keep copies of the operators' lockout keys caused the operators to fear for their safety while working on the generators.

When UMCS management and the Post Safety Office failed to make the changes requested by the operators, the operators contacted OSHA. In September 2000, OSHA conducted an on-site inspection and cited UMCS for numerous safety violations. On October 13, 2000, OSHA issued a "Notice of Unsafe or Unhealthful Working Conditions." Among other violations, OSHA cited UMCS management for (1) failure to provide adequate protective equipment; (2) failure to conduct a workplace hazard assessment; (3) failure to provide adequate training required by 29 CFR § 1910.132(f)(1); and (4) failure to establish adequate lockout/tagout training and procedures pursuant to 29 CFR § 1910.147. The whistleblowers also report that OSHA instructed management to destroy the extra copies of the operators' lockout keys.

The whistleblowers state that, in response to OSHA's inspection, management attempted to correct some, but not all, of the cited violations. They state that on September 17, 2000, two days before OSHA was scheduled to conduct its inspection, management provided them with safety aprons and gloves. In April 2001, management finally issued them safety shoes. However, the whistleblowers allege that many of the other violations cited by OSHA were never corrected. For example, they state that OSHA informed management that the on-site emergency showers and eye washes did not meet OSHA's water pressure standard of producing 20 gallons of water per minute, see 29 CFR 1910.151(c) and ANSI standard Z358.1-1998, yet management never corrected this problem. The whistleblowers also contend that management never issued them protective glasses, nor did management ever destroy the extra copies of their lockout keys.

On January 1, 2001, the Fort Gordon DPW entered into a contract with ERI Services, Inc. (ERI) to perform UMCS operations. The operators' former supervisor, Mr. Pavliscsak, was appointed to serve as the contracting officer's representative (COR). On January 10, 2001, the UMCS operators were notified that their jobs were

going to be contracted out, and they would soon be transferred to other positions.[2] ERI assumed responsibility for UMCS operations on May 1, 2001.

According to Mr. Griffin and Mr. Combs, who currently work for the contractor, many of the problems that existed when UMCS was under Government control still persist under ERI. They attribute this situation in large part to a lack of involvement and enforcement on the part of Government officials responsible for overseeing the contract, including the COR Mr. Pavliscsak and DPW Energy Engineer Glenn Stubblefield. In particular, Mr. Pavliscsak, as the COR, is the person who was specifically appointed by the contracting officer to monitor contractor performance. Because he is also the former UMCS team leader, he should be very familiar with the laws and regulations applicable to UMCS operations.

First, Mr. Griffin alleges that Government officials failed to facilitate a smooth transition when UMCS passed from Government to contractor control. He states that, under the contract, the Government was obligated to provide ERI with detailed SOPs for running UMCS. It failed to do so, and, as a result, ERI is currently in the process of constructing its own SOPs based upon past experience with similar job sites. In the interim, however, UMCS has been operating without adequate guidelines. Specifically, Mr. Griffin reports that ERI does not yet have a lockout/tagout procedure in place, in violation of 29 CFR §1910.147(a)(3).

Mr. Griffin and Mr. Combs further allege that many of the safety hazards that existed when UMCS was under Government control still continue under ERI management. In addition to the potential danger created by the absence of a lockout/tagout procedure, Mr. Griffin reports that ERI has not issued the operators adequate safety equipment and protective gear, including safety shoes, glasses, and gloves, and Mr. Combs states that the emergency showers and eye washes on site still do not comply with OSHA standards.

Lastly, Mr. Griffin and Mr. Combs allege that the operators are required to operate dangerous high voltage equipment without adequate training. Although Mr. Griffin and Mr. Combs have prior on-the-job experience, they allege that at least one of the new operators has no previous experience with electrical generators. Mr. Griffin and Mr. Combs state that they still have not been licensed and certified in accordance with operator qualification requirements set forth at AR 600-55.

[2] Mr. Fullbright, Ms. Reed, Mr. Ellis, Mr. Poston, and Mr. Skvarna were transferred to other positions at Fort Gordon (Ms. Reed has since retired from Federal service), and Mr. Griffin and Mr. Combs retired from Federal service in order to continue working at UMCS under contractor ERI.

PPE

P91

DEPARTMENT OF THE ARMY
US ARMY CLAIMS SERVICE
OFFICE OF THE JUDGE ADVOCATE GENERAL
4411 LLEWELLYN AVENUE
FORT GEORGE G MEADE MARYLAND 20755-5360

REPLY TO ATTENTION OF:

12 OCT 2000

Personnel Claims Branch
00-281-0439

SJA FT GORDON
OCT 18 2000
RECEIVED

Mr. Reuben R. Fullbright
1585 Hinton Wilson Road
Harlem, Georgia 30814

Dear Mr. Fullbright:

This responds to your letter requesting reconsideration of your claim for your personal clothing damage at your work site.

The Army Claims Service has examined your claim file and related correspondence. Based upon our review of the facts and circumstances surrounding your loss, I am satisfied that the field claims authority acted appropriately and complied with Chapter 11, Army Regulation 27-20, implementing the Personnel Claims Act, Title 31, United States Code, Section 3721.

I have reviewed the evidence submitted, and I concur with the decision of the Staff Judge Advocate. You knew the requirements, and danger involved in checking the fluid level in the batteries. Although you had a physical impairment that you knew would prevent you from performing the task properly, and having been given an option to decline, you choose to continue with this task. Because your actions were the proximate cause of the damage to your clothing, no award is warranted.

While I regret that more favorable action could not be taken on your claim, under the provisions of subsection (k) of the above-cited statute, my determination concerning your claim is final as a matter of law.

Sincerely,

Stewart C. Hudson
Colonel, U.S. Army
Chief, Personnel Claims and
Recovery Division

Copy Furnished: Claims Office, Fort Gordon, Georgia (281)

rec'd 12 Jun 00 P2

SUBJECT: Claim Number 00-281-0439

8 June 2000

Frederic L. Borch III
Colonel, U.S. Army
Staff Judge Advocate

Dear Col. Borch:

I recieved your letter, dated June 6th, stating you had to deny my claim. I feel this decision is wrong and this should serve as written request for reconsideration because of the following reasons.

1. According to AR 27-20, all affected agents should be present when investigation is being done. This was not done, if it had been done I would have asked whomever showed you the batteries could be checked without contact, to do so with a full leg brace on and on 2 crutches, as I was doing at the time the incident occurred.

2. In sending in the claim I attached a full job description and if you look at it you will see, not only is checking the batteries not there but running the Power Plants are not there. Thus in our job description there should not be that normal hazard.

3. In your last statement on paragraph #2, you said there is no need for protective clothing while checking batteries. This is in direct conflict with OSHA regulations, AR 385-10, and in Articles 17 and 18 of the Union agreement.

Sincerely,

Reuben Ray Fulbright
Operator, UMCS
DPW Ft. Gordon GA.

SJA FT GORDON
JUN 12 2000
RECEIVED

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280
OFFICE OF THE STAFF JUDGE ADVOCATE

REPLY TO
ATTENTION OF:

JUL 28 2000

Claims Branch

SUBJECT: Claim Number 00-281-0439

Mr. Reuben R. Fullbright
1585 Hinton Wilson Road
Harlem, GA 30814

Dear Mr. Fullbright:

This responds to your letter requesting reconsideration of your claim pertaining to your household goods shipment. Your claim and request for reconsideration have been forwarded for independent review and determination to the Commander, U.S. Army Claims Service, Building 4411, Llewellyn Ave., Ft. Meade, MD 20755-5360. The Claims Service will respond directly to you with their decision. Any further correspondence regarding your claim should be sent to that address.

Sincerely,

Frederic L. Borch III
Colonel, U.S. Army
Staff Judge Advocate

BASIC RULES OF ELECTRICAL SAFETY

There are ways to work with or near electrical equipment and wiring that will help keep you safe. All workers should follow these rules, whether or not they are electricians.

1) Do not wear rings, watches, or any metal jewelry or ornaments when you are working near electrical circuits. Wear shoes with non-conducting (rubber) soles.
2) Do not use metal ladders or uninsulated metal tools near electricity. Use only intrinsically safe or explosion-proof tools and hand lamps in dangerous locations.
3) Keep electrical machinery free of dust, dirt, and oil. Do not store anything in switch boxes. Keep all switch doors closed. Be sure all equipment meets the requirements of a recognized testing laboratory. Underwriter's Laboratory (UL) and Factory Mutual (FM) are the two best known certifying agencies. Never overload a circuit, even when all equipment is certified.
4) Examine all electrical tools and equipment for signs of damage. Never use faulty power tools. When tools or their cords are damaged, replace them at once.
5) Wires with damaged or deteriorating insulation should be replaced. Only in an emergency, and for temporary use only, should a wire be wrapped with electrical tape.
6) Water and electricity do not mix. Check your work area for puddles and wet surfaces.
7) Use an extinguishing agent designed for electrical fires.
8) The most important rule to follow when making repairs on or near an electrical circuit is to shut off and tag out the power source. Then, to be sure, test the circuit with a current tester or meter before you work on it.

✳ BATTERY SAFETY PRECAUTIONS ✳

The principal hazard in connection with batteries is the danger of acid burns when refilling or when handling them. These burns can be prevented by the proper use of eye shields, rubber gloves, rubber aprons, and rubber boots with non-slip soles. Rubber boots and apron need to be worn when batteries are being refilled. Always wear safety glasses when working around batteries to prevent the possibility of acid burns of the eyes.

Another hazard is the danger of explosion due to the ignition of hydrogen gas given off during battery charging operation. This is especially true where the accelerated (equalizing) charging method is used. Open flames or smoking is prohibited in the battery rooms and the charging rate should be held at a point that will prevent the rapid liberation of hydrogen gas. Manufacturers' recommendations as to the charging rates for various size batteries should be closely followed and the exhaust system should be used.

Particular care should be taken by technicians to prevent short circuits while batteries are being charged, tested, or handled. Hydrogen gas, which is accumulated while charging, is highly explosive and a spark from a shorted circuit could easily ignite the gas, causing serious damage to personnel and equipment.

STAFF GORDON
JUN 09 2000
RECEIVED

– P5

OSHA Directives

STD 1-8.2 - 29 CFR 1910.151(c), Medical Services and First Aid; 29 CFR 1926.50 and .51, Medical Service and First Aid, and ...

OSHA Directives - Table of Contents

- **Record Type:** Instruction
- **Directive Number:** STD 1-8.2
- **Subject:** 29 CFR 1910.151(c), Medical Services and First Aid; 29 CFR 1926.50 and .51, Medical Service and First Aid, and ...
- **Information Date:** 03/08/1982

OSHA Instruction STD 1-8.2
March 8, 1982
of Compliance Programming

Subject: 29 CFR 1910.151(c), Medical Services and First Aid; 29 CFR 1926.50 and 51, Medical Service and First Aid, and Sanitation, Respectively; Applicable to Electric Storage Battery Charging and Maintenance Areas

A. Purpose. This instruction provides guidelines regarding eye wash and body flushing facilities required for immediate emergency use in electric storage battery charging and maintenance areas.

B. Scope. This instruction applies OSHA-wide.

C. Action. OSHA Regional Administrators/Area Directors shall ensure that OSHA field staff apply the requirements the subject standards to electric storage battery charging areas as set forth in E. of this instruction.

D. Federal Program Change. This instruction describes a Federal program change which affects State programs. Each Regional Administrator shall:

1. Ensure that this change is forwarded to each State designee.

2. Explain the technical content of the change to the State designee as requested.

3. Ensure that State designees are asked to acknowledge receipt of the Federal Program change in writing, within 30 days of notification, to the Regional Administrator. This acknowledgment should include a description either of the State's plan to implement the change or of the reasons why the change should not apply to that State.

4. Review policies, instructions and guidelines issued by the State to determine that this change has been communicated to State program personnel. Routine monitoring activities (accompanied inspections and case file reviews) shall also be used to determine if this change has been implemented in actual performance.

P.6

E. Guidelines. OSHA field staff will evaluate the potential circumstances for employee exposure to electrolyte(s) in electric storage battery handling, charging and maintenance areas.

1. The safety or health compliance officer shall document the following observations in the case file:

   a. Employee use of personal protective equipment.

   b. Type and chemical concentration of electrolyte(s).

   c. Special guards and/or precautions intended to provide for employee protection from electrolyte exposure.

   d. Based upon employee job functions, record the extent and type of probable employee exposure to electrolyte(s).

   e. Note the availability and location of eye wash and body flushing equipment/facilities (An arrangement, which includes a hose equipped with a proper face and body wash nozzle, shall also be noted.)

2. The compliance officer and Area Director shall evaluate the data documented in E.1. Where potential employee exposure to hazardous storage battery electrolyte(s) exists, the circumstances and extent of exposure shall determine the application of the following alternatives:

   a. The use of effective personal protective equipment in combination with an eye wash and body flushing station in near proximity to the work area(s), shall be deemed to provide adequate minimum protection for employees.

   b. In areas where the extent of possible exposure to electrolyte is small, (i.e., such as auto garages, service stations and in certain industrial and construction situations), a specially designated pressure controlled and identified water hose equipped with a proper face and body wash nozzle which will provide copious amounts of low velocity potable water, or an

appropriate portable eye wash device containing not less than one gallon of potable water which is readily available and mounted for use, is considered to provide minimum employee protection when proper personal protective equipment is used.

   c. In addition to emergency eye and/or face wash procedures, the employer shall ensure that adequate provisions have been established for the emergency care of employees exposed to eye or face contact with electrolytes.

   d. At construction sites and in commercial and manufacturing facilities at locations where powered industrial trucks are

P.7

parked for overnight storage and routine battery recharging only, no need for emergency facilities exists unless potential exposure to electrolyte is substantiated. Where exposure is possible (i.e., servicing batteries) the provisions of E.2.b and E.2.e. should be evaluated for applicability.

e. At construction sites and in commercial manufacturing facilities where batteries (such as industrial truck batteries) are serviced and handled, proper plumbed eye wash and body drenching equipment shall be available immediately adjacent to the work station(s) and within the work area regardless of the personal protective equipment required and used.

3. Where employee exposure to hazardous electric storage battery electrolyte(s) exists and minimum protection measures are not provided, citations shall be issued as appropriate for violations of:

a. 29 CFR 1910.151(b) or 29 CFR 1926.50(c), a person or persons adequately trained to render first aid shall be readily available in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees.

b. 29 CFR 1910.151(c) and as adopted by 29 CFR 1926.51, where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

c. 29 CFR 1910.132(a) or 29 CFR 1926.28(a), personal protective equipment for eyes, face, head, and extremities, protective clothing and protective shields and barriers, shall be provided, used and maintained in a sanitary and reliable condition wherever it is necessary by reason of chemical hazards encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

F. Background. 29 CFR 1910.151 (c) , Medical Services and First Aid, needs clarification regarding its applicability to the hazards of electric storage battery charging areas and the potential exposure of employees to electrolyte(s). There is a clear need to identify the extent and suitability of minimum acceptable eye wash and body quick drenching facilities which are available to potentially exposed employees.

1. The extent of potential employee exposure varies with workplace situations such as:

a. Employee functions.

b. Type of electrolyte(s) and concentration.

c. Type and size of batteries.

d. Facility layout.

e. Personal protective equipment used.

2. The need for eye wash and body quick drenching equipment varies with the factors noted in F.1. Therefore, judicious enforcement of the standard

should provide for an evaluation of the contributing factors relative to the potential hazardous exposure, and should permit appropriate minimum assurances for adequate first aid and subsequent treatment.

3. Various forms of eye wash equipment are available today. Many are of the portable or self contained wall mounted type which are limited in the quantity of water available for eye wash purposes, and usually do not provide for body drenching. This equipment may be used for compliance with 29 CFR 1910.151(c) only when it is not economically feasible to provide plumbed equipment and/or where the potential employee exposure to electrolyte(s) is determined to be slight.

4. Eye wash equipment should provide copious low velocity flow of portable water at a suitable temperature, generally between 60 degrees F and 105 degrees F.

Thorne G. Auchter
Assistant Secretary
DISTRIBUTION: National, Regional and Area Offices
All Compliance Officers
State Designees
NIOSH Regional Program Directors

OSHA Directives - Table of Contents

P9

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5280
OFFICE OF THE STAFF JUDGE ADVOCATE

REPLY TO
ATTENTION OF:

JUN 06 2000

SUBJECT: Claim Number 00-281-0439

Mr. Reuben R. Fullbright
1585 Hinton Wilson Road
Harlem, GA 30814

Dear Mr. Fullbright:

Your claim, dated 1 June 2000, has been adjudicated under the provisions of the Military Personnel and Civilian Employees Claims Act of 1964 (31 USC §3721), as implemented by AR 27-20, Chapter 11.

Unfortunately, I must deny your claim. AR 27-20 and DA Pam 27-162 provide that damage caused by incidental contact with battery acid is considered a normal hazard of day-to-day living and working. Your situation is not unusual and is not a compensable event. Members of this office visited your work site and inspected the location of the batteries. There is no evidence of government negligence in not providing protective clothing because checking the batteries can be accomplished without coming into contact with acid.

If you are dissatisfied with the action taken on your claim, you may request reconsideration in writing within 60 days stating the reasons you believe this action is erroneous. This is not intended to imply that any such request, if filed, would be approved.

Sincerely,

Fred Borch

Frederic L. Borch III
Colonel, U.S. Army
Staff Judge Advocate

P10

00-281-0439

CLAIM FOR LOSS OF OR DAMAGE TO PERSONAL PROPERTY INCIDENT TO SERVICE

PART I - TO BE COMPLETED BY CLAIMANT *(See back for Privacy Act Statement and Instructions.)*

1. NAME OF CLAIMANT *(Last, First, Middle Initial)*	2. BRANCH OF SERVICE	3. RANK OR GRADE	4. SOCIAL SECURITY NUMBER
Fullbright , Reuben R	DPW UMCS	WG - 11	255-86-1932

5. HOME ADDRESS *(Street, City, State and Zip Code)*	6. CURRENT MILITARY DUTY ADDRESS *(If applicable) (Street, City, State and Zip Code)*
1585 Hinton Wilson Rd. Harlem GA 30814	Bldg. 14600 Fort Gordon GA 30905

7. HOME TELEPHONE NO. *(Include area code)*	8. DUTY TELEPHONE NO. *(Include area code)*	9. AMOUNT CLAIMED
(706) 556-6287	(706) 791-6423	$90.00

10. CIRCUMSTANCES OF LOSS OR DAMAGE *(Explain in detail. Include date, place, and all relevant facts. Use additional sheets if necessary.)*

While operating the Power Plants (which are not on our job description), we were verbally instructed to check and refill oil, batteries, cooling systems, etc. I was checking the batteries, which are located under the floor in the control vans. Due to the fact that a week earlier while walking on the loose gravel at the Power Plant site, I had torn the cartlege loose in my knee, leaving me on crutches and in a full leg brace, I was unable to bend over to reach batteries. I had to sit on the floor beside battery compartments.

I checked one van the first night since I could smell a strong sulfur odor. The plates were dry on top. The next night I was operating the other set and thus checked batteries in that set, and a couple of days later rechecked the first set since they were so low the first time.

Since I do laundry on a weekly basis and the damage caused by the acid didn't show up until pants were washed, I did not realize any damage had occured.

Be it known that I was wearing the safety equipment (a face sheild) that was supplied for us to use. I have later found out in checking that we are supposed to be supplied with protective clothing, including aprons and rubber gloves for checking batteries. As of this date these still do not exist.

-----NOTHING FOLLOWS----- RRS 1Aug99

	YES	NO
11. DID YOU HAVE PRIVATE INSURANCE COVERING YOUR PROPERTY? *(E.g., say "Yes" on a shipment or quarters claim if you had transit, renter's or homeowner's insurance; say "Yes" on a vehicle claim if you had vehicle insurance. Attach a copy of your policy.)*		X
12. HAVE YOU MADE A CLAIM AGAINST YOUR PRIVATE INSURER? *(If "Yes," attach a copy of your correspondence. If you have insurance covering your loss, you must submit a demand before you submit a claim against the Government.)*		X
13. HAS A CARRIER OR WAREHOUSE FIRM INVOLVED PAID YOU OR REPAIRED ANY OF YOUR PROPERTY? *(If "Yes," attach a copy of your correspondence with the carrier or warehouse firm.)*		X
14. DID ANY OF THE CLAIMED ITEMS BELONG TO THE GOVERNMENT OR TO SOMEONE OTHER THAN YOU OR YOUR FAMILY MEMBER? *(If "Yes," indicate this on your "List of Property and Claims Analysis Chart," DD Form 1844.)*		X
15. WERE ANY OF THE CLAIMED ITEMS ACQUIRED OR HELD FOR SALE, OR ACQUIRED OR USED IN A PRIVATE PROFESSION OR BUSINESS? *(If "Yes," indicate this on your "List of Property and Claims Analysis Chart," DD Form 1844.)*		X

16. UNDER PENALTY OF LAW, I DECLARE THE FOLLOWING AS PART OF SUBMITTING MY CLAIM:

If any missing items for which I am claiming are recovered, I will notify the office paying this claim. (For shipment claims.) Missing items were packed by the carrier; they were owned prior to shipment but not delivered at destination; after my property was packed, I/my agent checked all rooms in my dwelling to make sure nothing was left behind.

I assign to the United States any right or interest I have against a carrier, insurer, or other person for the incident for which I am claiming; I authorize my insurance company to release information concerning my insurance coverage.

I authorize the United States to withhold from my pay or accounts for any payments made to me by a carrier, insurer, or other person to the extent I am paid on this claim, and for any payment made on this claim in reliance on information which is determined to be incorrect or untrue. I have not made any other claim against the United States for the incident for which I am claiming. I understand that if any information I provide as part of my claim is false, I can be prosecuted.

FT GORDON JUN 01 2000 RECEIVED

17. SIGNATURE OF CLAIMANT *(or designated agent)*	18. DATE SIGNED *(YYYYMMDD)*
Reuben R Fullbright	26 May 2000

PART II - CLAIMS APPROVAL *(To be completed by Claims Office)*

19. PROCEDURE *(X one)*	20. AMOUNT AWARDED. The claim is cognizable and meritorious under 31 U.S.C. 3721; the claimant is a proper claimant; the property is reasonable and useful; the loss has been verified in accordance with applicable procedures as prescribed by the controlling departmental regulation; and the following award is substantiated:	$
a. SMALL CLAIMS b. REGULAR CLAIMS		

21. SIGNATURES *(Signatures at a and c not required if small claims procedure is utilized)*

a. CLAIMS EXAMINER	b. DATE SIGNED *(YYYYMMDD)*	c. REVIEWING AUTHORITY	d. DATE SIGNED *(YYYYMMDD)*

e. TYPED NAME AND GRADE OF APPROVING AUTHORITY	f. SIGNATURE OF APPROVING AUTHORITY	g. DATE SIGNED *(YYYYMMDD)*

PRIVACY ACT STATEMENT

AUTHORITY: 31 U.S.C. 3721, and EO 9397, November 1943 (SSN).

PRINCIPAL PURPOSE(S): Filing, investigation, processing and settlement of claims for losses incident to service.

ROUTINE USES:
a. Information is principally used to provide a legal basis for the administrative payment of claims against the Government. Information is also used in connection with:

(1) Recovery from common carriers, warehouse firms, insurers and other third parties.

(2) Collection from claimants of improper payments or overpayments.

(3) Investigation of possible fraudulent claims.

(4) Possible criminal prosecution by the Department of Justice or other agencies if fraud is established.

b. Social Security Numbers are used to assure correct identification of claimants in order to assure payment to the proper claimant and avoid duplication of claims.

DISCLOSURE: Voluntary; however, failure to supply information will cause delay in settlement and may result in denial of a portion or all of the claim.

INSTRUCTIONS TO CLAIMANTS

1. You must submit your claim in writing within two years of the date of the incident giving rise to the claim. This two year time limitation may not be waived.

2. The claimant or an authorized agent must complete and sign Part I of this form, answering all questions. If the claim is signed by an agent *(such as a spouse)* or a survivor of a deceased proper claimant, that person must have a document showing his or her authority to present the claim, such as a power of attorney, etc.

3. If the claim is for property lost or damaged while being shipped or stored pursuant to travel orders, submit copies of your orders and all shipping documents, including your inventory and your "Joint Statement of Loss or Damage at Delivery/Notice of Loss or Damage," DD Forms 1840/1840R. If you notice damage after delivery, you must complete the DD Form 1840R and get it to the Claims Office within 70 days after delivery.

4. You may obtain further information from a Claims Office.

5. You are entitled to claim the following:

a. Reasonable local repair cost, if an item can be economically repaired. *(You may claim small amounts without an estimate. Otherwise, submit an estimate of repair from a repair firm or, if repairs have been completed, your receipt. The claims office may waive this in appropriate cases.)*

b. Reasonable local replacement cost if an item is missing, destroyed, or not economic to repair. *(Replacement costs may be obtained from commercial catalogs or a military exchange. If you cannot find the item in a catalog or the exchange and the cost is more than $100.00, obtain a statement from a commercial firm for the cost of a similar item. If you have purchase receipts, bring these to the Claims Office as well.)*

c. Reasonable cost of obtaining local estimates of repair, if the cost of such estimates will not be credited if repair work is done. *(Normally, you may not claim appraisal fees.)*

PART III - DENIAL OR SUPPLEMENTAL PAYMENT *(To be completed by Claims Office)*

X	23. DENIAL *(X if applicable)* The claim is not cognizable or meritorious under 31 U.S.C. 3721 and the applicable provisions of the controlling departmental regulation, and is denied.		24. SUPPLEMENTAL PAYMENT *(X and complete if applicable)* The claim is cognizable and meritorious under 31 U.S.C. 3721, and the following additional award is substantiated: $

25. SIGNATURES			
a. CLAIMS EXAMINER	b. DATE SIGNED *(YYYYMMDD)*	c. REVIEWING AUTHORITY Allan T. Downen	d. DATE SIGNED *(YYYYMMDD)* 5 June 2000

25. APPROVING/SETTLEMENT AUTHORITY *(Settlement Authority is required for denial.)*			
a. TYPED NAME Frederic L. Borch, III Staff Judge Advocate	b. GRADE COL	b. SIGNATURE	c. DATE SIGNED *(YYYYMMDD)* 6 Jun 00

DD FORM 1842 (BACK), MAY 2000

LIST OF PROPERTY AND CLAIMS ANALYSIS CHART

(Items 14 through 31 to be filled out by Claims Office)

1. NAME OF CLAIMANT *(Last, First, Middle Initial)*	3. PICK-UP DATE *(YYYYMMDD)*	14. ORIGIN CONTRACTOR	17. 2ND CONTRACTOR	21. CLAIM NUMBER	22. NET WT/MAX CAR
Fullbright, Reuben R.				00-281-0439	
2. CLAIMANT'S INSURANCE COMPANY *(If applicable)*	**4. DELIVERY DATE** *(YYYYMMDD)*	**15. INVENTORY DATE** *(YYYYMMDD)*	**18. EXCEPTION SHEET DATE** *(YYYYMMDD)*	**23. GBL NUMBER**	**24. LOT NUMBER**
a. NAME: N/A — b. POLICY NO.: N/A					

5. LINE NO.	6. QTY	7. LOST OR DAMAGED ITEMS *(Describe the item fully, including brand name, model and size. List the nature and extent of damage. If missing, state "MISSING.")*	8. INV NO.	9. ORIGINAL COST 10. MM/YYYY PURCHASED	11. AMOUNT CLAIMED a. Repair Cost *(or)* b. Replacement Cost	16. EXCEPTIONS	19. INV NO.	20. EXCEPTIONS	25. AMOUNT ALLOWED	26. ADJUDICATOR'S REMARKS	27. ITEM WT	28. HOUSE LIABILITY	29. CARRIER LIABILITY
1	3	Pairs of Levies #517 Boot Cut blue jeans Size 32 X 32		29.99pr May 99	29.99 pr								

12. REMARKS	13. TOTAL	$		30. TOTAL AMOUNT ALLOWED	$		31. THIRD PARTY LIABILITY	$	$
Jeans burnt up with acid at Power Plants		89.97							

DD F 14, MAY 2000 PREVIOUS EDITION [illegible]LETE.

P13
LA Form 385-3

CHAPTER 5. PROTECTIVE BODY CLOTHING

5-1 INTRODUCTION

The standards of the Occupational Safety and Health Act give limited reference to protective clothing. This does not mean, however, that protective clothing is not required. On the contrary, suitable clothing must be provided for protection from injuries. The OSHA standards state this emphatically in broad terms.

These broad, general requirements are included in the opening paragraph 1910.132 of "Subpart I—Personal Protective Equipment," where it states that protective equipment (including personal protective equipment for eyes, face, head, and extremities), protective clothing, respiratory devices, and protective shields and barriers must be provided, used, and maintained in a sanitary and reliable condition wherever they are needed because hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants could cause injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact.

Further, where employees provide their own protective equipment, the employer is still responsible for the adequacy, proper maintenance, and sanitation of that equipment.

These general requirements for protective clothing and other personal protective equipment also mandate that all such equipment must be of safe design and construction for the work to be performed.

Employers are given the full responsibility of deciding when protective clothing is needed and what types of clothing are required.

The OSHA standards do give some clues for industries or operations that particularly require safety clothing in specific references to protective clothing scattered through the standards.

CTA 50-900 (Note 96) provides the following guidance in the purchase of protective clothing:

> Items purchased are to be of a design and construction of the most suitable materials which will afford the required protection against inclement weather and each specific hazard involved, such as:
>
> (1) Asbestos to protect against burns caused by flame, flying sparks, hot metal or liquid splashes, hot objects, sustained direct or reflected heat, etc.
> (2) Rubber and synthetic rubber to protect against irritations, burns from acids, vapors, solvents, oils, grease, water, steam, alkalis, salts, electricity, other chemicals, and toxic material.
> (3) Leather to protect against scratches, cuts, bruises, abrasions, flying objects and minor impacts, sparks, hot splashes, etc.
> (4) Metal mesh to protect against cuts and abrasions.
> (5) Fiberglass to protect against oils, water, acids, alkalis, greases, fire, etc.
> (6) Fabric especially treated to protect against inclement weather and specific hazards.
> (7) Leather-lead, fiber-lead, and rubber-lead to protect against X-ray and beta radiation of atomic fission products, etc.

Regardless of the type of clothing used, however, there are some basic precautions that should be observed if the clothing itself is not to create an additional hazard:

(1) No loose, torn, or ill-fitting clothing of any kind should be worn around rotating or reciprocating equipment.
(2) When two-piece clothing is worn to protect against acids, caustics, or other dangerous liquids, the upper garment should always overhang the lower so that any liquid spills or splashes will run off toward the floor and will not be trapped inside the clothing itself. For the same reason, trousers should be cuffless and worn outside boots or shoes.
(3) Similarly, coats and/or aprons should be removed before gloves when caustic or corrosive materials are being handled.
(4) Any protective clothing worn over or in addition to normal clothing may cause an increase in body heat buildup and thereby reduce the sustained maximum work capacity of the user. See section 10-3.1.

P 14

5-1.1 SPECIAL PURPOSE PROTECTIVE BODY CLOTHING, ENSEMBLES, AND SUITS – CROSS REFERENCE:

Abrasive Blasting — Chapter 3
Aviation — Chapter 9
Body Armor – Chapter 5
Construction and Demolition Workers — Chapter 12
Divers — Chapters 4 and 15
Electrical Workers — Chapter 13
Ensemble Reflective Safety Clothing Marking — Chapter 18
Ensemble Trainer Dog Attack — Chapter 5
Extreme Temperature and Weather Conditions — Chapter 15
Fire Fighter's Clothing — Chapter 14
Fuel Handlers — Chapter 17
Handlers of Chemical Agents
(1) Clothing Outfit, Chemical, Protective — Chapter 11
(2) Suit, Chemical, Protective — Chapter 11
Handlers of Toxic Chemical Agents — Protective Outfit, Impermeable, Supplied Air, M5 — Chapter 11
Handlers of Vesicant Gases — Chapter 11
Nuclear Radiation Protective (Apron), Boots, Coveralls, Gloves, and Sleeves — Chapter 16
Respiratory Protection — Chapter 3
Suit, Radiation, Hazard, Disposable — Chapter 16
Suit, Switchers, Electrical — Chapter 13
Suit, Tear-off, Handlers of Aluminum Alkyls and Other Similar Products — Chapter 14
Toxicological Agents, Protective — Chapter 10
Welders — Chapter 14

5-2 LIMITED PROTECTIVE BODY CLOTHING

There are certain items of clothing that are worn in lieu of the regular military or ordinary civilian clothing because the nature of the occupation requires limited protection against relatively harmless liquids, acids, and stains, that could not be removed from the regular military or ordinary civilian clothing without damage. The clothing worn by personnel engaged in laboratory work, food handling, commissary workers, etc., is representative of the type mentioned above. This limited protective clothing is also worn for purposes of sanitation and uniformity of dress and to portray a connotation of cleanliness in the area in which such items of clothing are authorized. Because of the general nature and widespread use of this type of clothing, a separate item listing is not contained in this pamphlet. Accordingly, users should consult CTA 50-900, CTA 50-970, and SB700-20 for particular items desired.

5-3 SPECIFIC PROTECTIVE BODY CLOTHING

Safety items listed in this category are designed, constructed, and/or treated to provide protection against a specific type of hazard such as concentrated acids, flying chips, hot sparks, sharp-edged tools, etc. In the performance of tasks involving a specific hazard, care should be taken by each worker and supervisor to assure that proper clothing and equipment are worn for protection against that hazard, e.g., rubber protective equipment for electrical workers; see chapter 13, "Special Safety Protective Clothing Equipment for Electrical Hazards," or consult Safety Item Index.

Figure 5-1. Apron, Blacksmith: Bib-Type, Leather.

A. APRON, BLACKSMITH: BIB-TYPE, LEATHER (fig. 5-1)

A bib-type apron made of heavy-duty leather.

Source: LIN A-85905
NSN 8415-00-234-9254

Use: By personnel NOA' whose duties involve contact with hot sparks, molten metal, flying chips, rough objects, edged tools, etc.

B. APRON, CONSTRUCTION WORKER'S: BIB-TYPE, COTTON

A short, cotton apron with neck loop, waist

ties, and chest and thigh pockets for holding small tools, nails, etc.
Source: LIN A-86042
NSN 8415-00-257-4290

Use: By personnel requiring protection against abrasive materials.

C. APRON, CONSTRUCTION WORKER'S: WAIST-TYPE, COTTON

A short apron-type garment containing two front-mounted pouches or pockets for holding small parts, with adjustable waist strap.

Source: LIN A-86179
NSN 8415-00-273-9664

Use: For holding bolts, nuts, and tools during construction of towers, bridges, buildings, etc., by individual requiring protection against abrasive material ILO apron LIN A-86042.

D. APRON, IMPERMEABLE: DUCK, RUBBER-COATED, BLACK (fig. 5-2)

A full body apron made of cotton duck, rubber coated, with shoulder straps and waist ties.

Source: LIN A-86590
NSN 8415-00-082-6108

Use: To protect clothing and skin when working with water, steam, acids, solvents, alkalis, and caustic solutions. Occupations: photography darkroom worker, steam cleaning worker, electroplater, battery handler, etc., or when requiring protection from grease, oil, and similar stains; also by light or heavy general support maintenance company.

Limitation: Should not be worn by mess attendants.

Figure 5-2. Apron, Impermeable: Duck, Rubber-Coated, Black.

E. APRON, LABORATORY, PLASTIC, COLORLESS, BIB-TYPE

Source: LIN A-86864
NSN 8415-00-715-0450

Use: By personnel authorized to use impermeable rubber apron when plastic is more suitable (e.g., mess attendant) or in general work involving contact with water and steam.

F. APRON, MEAT CUTTER'S: BRASS, BIB, ADJUSTABLE STRAP

Source: LIN A-87275
NSN 8415-00-292-9967

Use: By meat cutter requiring protection from injury to chest, groin, abdomen, and other frontal areas of the body when cutting and boning meat.

G. APRON, WELDER'S: LEATHER, BIB, STRAP

Source: LIN A-87549
NSN 8415-00-250-2531

Use: By individual serving in supply tool room; individual NOA whose duty involves contact with hot sparks, molten metal, flying chips, rough objects, edged tools, etc.

H. APRON, WELDER'S: ASBESTOS, LEG LENGTH—see chapter 14.

I. BODY ARMOR, FRAGMENTATION, PROTECTIVE: FOR NECK AND TORSO (fig. 5-3)

Source: LIN A-92145
NSN 8470-00-122-1299
through 1302

J. BODY ARMOR, FRAGMENTATION, PROTECTIVE: FOR THE GROIN

Source: LIN A-92008
NSN 8470-00-753-6110
through 6117

K. BODY ARMOR, FRAGMENTATION, SMALL ARMS, PROTECTIVE: GUNNER CREW CHIEF, FRONT AND BACK PLATE

Source: LIN B-85126
NSN 8470-00-450-3698
through 3709

CHAPTER 11. SPECIAL SAFETY PROTECTIVE CLOTHING AND EQUIPMENT FOR CHEMICAL HAZARDS

11-1 INTRODUCTION

Chemical substances are a common cause of skin disorders to include burns, inflammations, and dermatoses. Chemical injuries to the skin may also enhance secondary bacterial or fungal infections. Additionally, certain chemical substances may be absorbed through the skin and result in adverse internal toxic effects.

Local effects of chemical substances may be divided into primary skin irritants and skin sensitizers. A primary irritant is a chemical that causes damage by direct action on normal skin at the site of contact. This effect is a function not only of the inherent potential of the chemical, but also undivided susceptibility, concentrations, and contact time. The skin sensitizers may not produce obvious skin abnormalities on first contact. However, this initial exposure to a sensitizer alters skin reactivity such that subsequent contact on the same or other parts of the body with the material will result in dermatitis. Although certain substances have a greater propensity for sensitization than others, actual sensitization is a highly individualistic response. It is independent of the amount of the chemical and may occur suddenly after many uneventful contacts with the material. Primary irritants may also become sensitizers. In this circumstance, brief contact with dilute concentrations that would not otherwise produce irritation might result in sensitization.

Gloves and protective skin creams will aid in the control of dermatitis; however, they are not a substitute for cleanliness of the working environment or for personal cleanliness. Both the government and industry must be on the alert to the many new chemicals that are developed. New data specifications and test results that will disclose the proper protection for the new chemical must be secured. Prior to handling new chemicals, it is recommended that the safety department and the medical department be contacted to determine what precautions should be taken to avoid injury.

Another immediate danger to personnel handling chemicals is the transfer of liquid chemicals. Without proper equipment, dangerous liquids may be spilled or splashed, containers may be dropped and broken or become unsafe because of corrosion. Good safety practices and the use of proper equipment and clothing reduce the injuries caused by improper handling of liquid chemicals.

For warnings, see chapter 18, "Special Safety Protective Clothing and Equipment for Transportation."

Any protective clothing worn over or in addition to normal clothing may cause an increase in body heat buildup and reduce the sustained maximum work capacity of the user. See chapter 10, section 10-31.

Chapter 5, "Protective Body Clothing," and chapter 10, "Special Safety Protective Clothing and Equipment for Biological Hazards," contain additional items of clothing for protection in handling chemicals. Also consult TM 10-277, *Protective Clothing for Chemical Operations*.

11-2 SELECTED PORTIONS OF OSHA STANDARDS, PART 1910 – SUBPART H – HAZARDOUS MATERIALS – RELATED TO HANDLING CHEMICALS

"(9) *Personal protection.* (i) All employees working in and around open-surface tank operations must be instructed as to the hazards of their respective jobs, and in the personal protection and first aid procedures applicable to these hazards.

"(ii) All persons required to work in such a manner that their feet may become wet shall be provided with rubber or other impervious boots or shoes, rubbers, or wooden-soled shoes sufficient to keep feet dry.

"(iii) All persons required to handle work wet with a liquid other than water shall be provided with gloves impervious to such a liquid and of a length sufficient to prevent entrance of liquid into the tops of the gloves. The interior of gloves shall be kept free from corrosive or irritating contaminants.

"(iv) All persons required to work in such a manner that their clothing may become wet shall be provided with such aprons, coats, jackets, sleeves, or other garments made of rubber, or of other materials impervious to liquids other

than water, as are required to keep their clothing dry. Aprons shall extend well below the top of boots to prevent liquid splashing into the boots. Provision of dry, clean, cotton clothing along with rubber shoes or short boots and an apron impervious to liquids other than water shall be considered a satisfactory substitute where small parts are cleaned, plated, or acid dipped in open tanks and rapid work is required.

"(v) Whenever there is a danger of splashing, for example, when additions are made manually to the tanks, or when acids and chemicals are removed from the tanks, the employees so engaged shall be required to wear either tight-fitting chemical goggles or an effective face shield. See § 1910.133.

"(vi) When during emergencies as described in subparagraph (11)(v) of this paragraph, workers must be in areas where concentrations of air contaminants are greater than the limit set by subparagraph (2)(iii) of this paragraph, or oxygen concentrations are less than 19.5 percent, they shall be required to wear respirators adequate to reduce their exposure to a level below these limits, or to provide adequate oxygen. Such respirators shall also be provided in marked, quickly accessible storage compartments built for the purpose, when there exists the possibility of accidental release of hazardous concentrations of air contaminants. Respirators shall be approved by the U.S. Bureau of Mines, U.S. Department of the Interior and shall be selected by a competent industrial hygienist or other technically qualified source. Respirators shall be used in accordance with § 1910.134, and persons who may require them shall be trained in their use.

"(vii) Near each tank containing a liquid which may burn, irritate, or otherwise be harmful to the skin if splashed upon the worker's body, there shall be a supply of clean cold water. The water pipe (carrying a pressure not exceeding 25 pounds) shall be provided with a quick opening valve and at least 48 inches of hose not smaller than three-fourths inch, so that no time may be lost in washing off liquids from the skin or clothing. Alternatively, deluge showers and eye flushes shall be provided in cases where harmful chemicals may be splashed on parts of the body.

"(viii) Operators with sores, burns, or other skin lesions requiring medical treatment shall not be allowed to work at their regular operations until so authorized by a physician. Any small skin abrasions, cuts, rash, or open sores which are found or reported shall be treated by a properly designated person so that chances of exposures to the chemicals are removed. Workers exposed to chromic acids shall have a periodic examination made of the nostrils and other parts of the body, to detect incipient ulceration.

"(ix) Sufficient washing facilities, including soap, individual towels, and hot water, shall be provided for all persons required to use or handle any liquids which may burn, irritate, or otherwise be harmful to the skin, on the basis of at least one basin (or its equivalent) with a hot water faucet for every 10 employees. See § 1910.141(d).

"(x) Locker space or equivalent clothing storage facilities shall be provided to prevent contamination of street clothing.

"(xi) First aid facilities specific to the hazards of the operations conducted shall be readily available."

11-3 LABORATORY SAFETY

See chapter 10, section 10-4.

11-4 SPECIFIC ITEMS FOR PROTECTION AGAINST CHEMICALS

A. BOOT, COMBAT: MEN'S

A black leather boot, mildew resistant, 10 ½ inches high with rubber soles and heels.

Source: LIN C-06749
NSN — See SB 700-20 (various sizes)

Use: In lieu of rubber boots.

Limitation: Must be treated with protective dressing and used in combination with protective footwear cover.

B. LEATHER DRESSING, VESICANT GAS RESISTANT, M2

Source: LIN L-49585,
4 oz can:
NSN 8030-00-273-8719
5 gal pail:
NSN 8030-00-926-2235

Use: To soften, preserve, and waterproof leather boots and shoes, and to retard the pas-

160-895 O - 94 - 4

sage of vesicant agent through the leather. The 4 oz can is for emergency use of reimpregnation; the pail is for initial treatment by hot-dip immersion method.

C. DECONTAMINATING APPARATUS, PORTABLE M-2, M11 (fig. 11-1)

A 1 ½ quart container, with pump, that emits a fine spray when discharged.

Source: LIN F-81469
NSN 4230-00-720-1618 Type M11

Use: To decontaminate vehicles or relatively small areas with a fine spray of decontaminating solution.

NOTE: See TM 750-5-15 for other decontaminating apparatus.

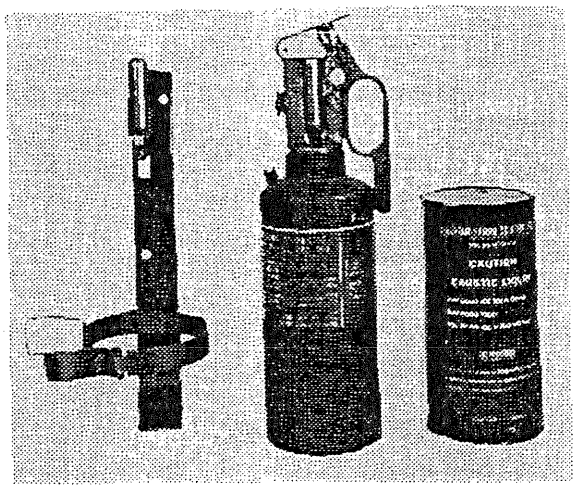


Figure 11-1. Decontaminating Apparatus, Portable M-2, M11.

D. DECONTAMINATING AND REIMPREGNATING KIT, INDIVIDUAL, M13

Containing powder, decontaminating, reimpregnating, dye, cutter, and powder.

Source: LIN F-80857
NSN 4230-00-907-4828

Use: For emergency decontamination of skin, clothing, and equipment exposed to chemical agent or for reimpregnating the protective liner outfit. Follow emergency instructions contained in kit.

E. FILTER UNIT, GAS PARTICULATE (fig. 11-2)

Various filter units are available to remove toxic gases and aerosols from air contaminated with CBR agents and to deliver the purified air to a protective shelter. Essentially these filter units consist of gas-particulate filters, flexible airhoses, and either an electric-motor-driven (EMD), or a gasoline-engine-driven (GED) blower.

Source: LIN H-48911 EMD, ABC-M6
NSN 4240-00-368-6127

Hazard: Gaseous and particulate contaminants immediately dangerous to life.

Limitation: Filter units will not protect against carbon monoxide gas. Do not use filter units as a ventilation system, as this will shorten the life of the filters and, subsequently, endanger life.

Other Precautions: For EMD units, insure that equipment is properly grounded. For GED units, insure that exhaust is vented away from the air inlet hose; exercise care in handling leaded gasoline.

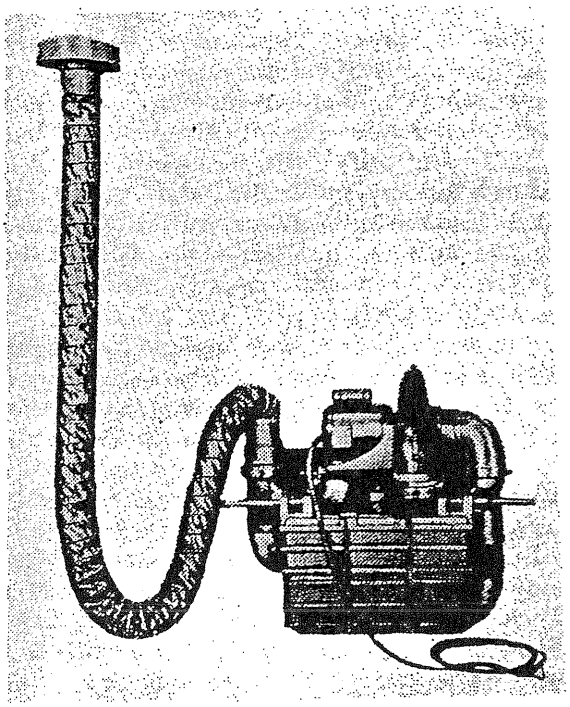


Figure 11-2. Filter Unit, Gas Particulate.

Reference: M6, TM 3-4240-207-12
M6A1, TM 3-4240-241-12
M11, TM 3-4240-210-12
M12, TM 3-4240-211-12
For complete listing and descriptive data, see TM 750-5-15.

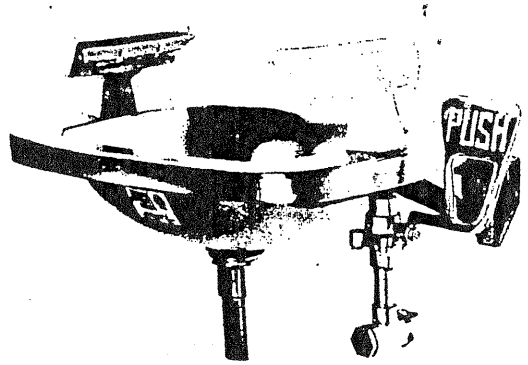


Figure 11-3. Fountain, Eye, and Face, Wash Station.

F. FOUNTAIN, EYE, AND FACE, WASH STATION (fig. 11-3)

For acid- and chemical-removal facilities, a fitted bowl with two low-pressure nozzles and a forehand pressure-release valve for washing the eyes.

Source: Appendix A

Use: By personnel working in operations involving danger of splash from chemicals.

G. GOGGLES, CHEMICAL SPLASH (fig. 11-4)

A ventilated, flexible, vinyl goggle with a one-piece replaceable lens and a removable foam filter.

Source: Appendix A

Use: For full eye protection on operations where there is a possibility of chemical splashes.

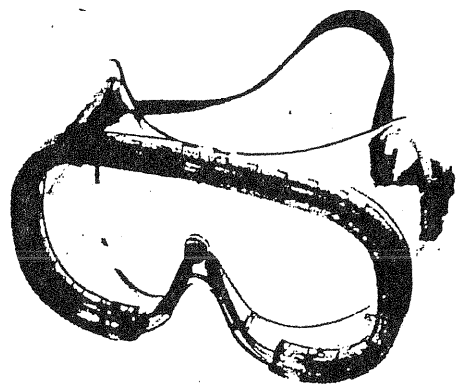


Figure 11-4. Goggles, Chemical Splash.

H. SHOWER, EMERGENCY (fig. 11-5)

A deluge type shower with a manually controlled pull valve.

Source: Appendix A

Use: In laboratories, chemical plants, missile facilities, refineries, foundries, or other locations where there is a danger of clothing fires or of acid, caustic, or chemical splashes or burns.

NOTE: Also see Shower Unit, Safety, Rocket Propellant Neutralizer, in chapter 17, "Special Safety Protective Clothing and Equipment for Handling Fuels."

I. SUIT, RESCUE, ACID (fig. 11-6)

A fully integrated, one-piece, vinyl-coated nylon suit with full-length pressure-tight zipper

Figure 11-5. Shower, Emergency.

Figure 11-6. Suit, Rescue, Acid.

and replaceable gloves, boots, and lens assembly. Color: yellow. May be used with self-contained breathing apparatus.

Source: Appendix A

Use: For protection against acid splash or for rescuing personnel from areas contaminated with acid gases, vapors, or liquid.

J. TEST KIT, IMPREGNITE-IN-CLOTHING, ABC-M2

Source: LIN W-05605
NSN 6630-00-783-8192

Use: To determine qualitatively the impregnite content of permeable protective (impregnated) clothing.

K. VESICANT AGENT, PROTECTIVE OINTMENT, M5

A squeeze tube containing protective ointment.

Source: LIN X-99538
NSN 6850-00-664-3647

Use: Applied to exposed portions of the body for protection against blister gases or to neutralize blister gases after exposure of any part of the body to them. Can be used to decontaminate personal equipment.

Limitation: M5 ointment is harmful to eye tissue; keep away from eyes.

L. WATER TESTING KIT, CHEMICAL AGENTS, AN-M2 (fig. 11-7)

Consists of reagents, glassware, and cleaning equipment.

Source: LIN Y-37267
NSN 6665-00-171-9747

Use: This kit is used in the field to detect contamination of unchlorinated water by chemical agents.

Limitation: A nonquantitative indication; therefore, the degree of contamination is not given. Kit does not detect bacterial contamination nor V-agents in water. See instructions included with kit.

11-5 CLOTHING AND EQUIPMENT FOR CHEMICAL HAZARDS

The items listed below are described in other chapters. Refer to chapter indicated for items not listed or to appendix B, "Safety Item Index."

Apron, Impermeable: Duck, Rubber Coated, Black
LIN A-86590 — Chapter 5

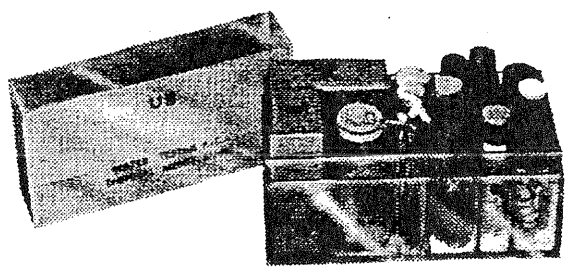


Figure 11-7. Water Testing Kit, Chemical Agents AN-M2.

Boots, Combat: Men's — See para. 11-4, items A. and B.
Boots, Safety: Knee, Rubber, with Safe Toe and Steel Shank
LIN 80601N — Chapter 6
Cap, Clean Room: White, Orlon/Dacron
LIN 81120N — Chapter 4
Cap, Protective, Maintenance Personnel: Powder Shop, White, Drill
LIN 81160N — Chapter 4
Coveralls, Safety, Industrial: Cotton Sateen, White
LIN F-33046 — Chapters 5 and 14
Coveralls, Men's: White, Cotton Sateen, Carded, 8.802
LIN F-32535 — Chapter 5
Coveralls, Safety, Industrial, Fire, Oil, Water, and Chemical Resistant
LIN 81475N — Chapter 5
Coverall, Explosive Handlers
LIN F-31850 — Chapter 14
LIN 81456N — Chapter 14
Cream, Barrier — Chapter 20
Detection Devices as Needed — Chapter 3
Drawers, Men's: Cotton, Thigh Length, White, Elastic Waistband
LIN G-48939 — Chapter 5
Ensemble, Aluminum, Asbestos, Fire Fighters — Chapter 14
Face Shield, Industrial, Nonhinged Window — Chapter 4
Goggles, Chemical Splash — See para. 11-4, item G.
Gloves, Rubber: Acid and Alkali Resistant, Black, Type I
LIN J-69160 — Chapter 7
Gloves, Rubber Gauntlet — Chapter 7
Gloves, Rubber: Organic, Solvent Resistant, Type III
LIN J-69845
Jacket, Safety, Oil and Acid Protective
LIN 84125N — Chapter 5
Leggings, Protective, Knee or Hip Length
LIN 84651N — Chapter 5
LIN 84656N — Chapter 5
Overalls, Safety: Oil and Acid Protective, Bib Type, Infrared Protective
LIN 85856N — Chapter 5
Overshoe, Men's: Rubber, Black, High, Cleated, 5 Buckle
LIN N-39848 — Chapter 6
Respiratory Protection as Required — Chapter 3
Sandal, Strap On
LIN 87112N — Chapter 6
Shirt, Safety, Oil and Acid Protective: Fire and Water Resistant
LIN 87205N — Chapter 5
Shoes, Nonsparking: Traction Tread Sole and Heel, Mildew Resistant
LIN T-08472 — Chapter 6
Shoes, Safety: Clog, Conductive
LIN 87231N — Chapter 6
Spat, Protective — Chapter 6
Suit, Utility: Nylon Coated Both Sides — Chapter 5
Sweatband, Adjustable
LIN 87776N — Chapter 14
Trousers, Safety, Oil and Acid Protective, Fire and Water Resistant
LIN 88265N — Chapter 5

11-6 HAZARDS ASSOCIATED WITH CHEMICALS

If, at times, additional hazards may be encountered, reference should be made to the specific chapter pertaining to that hazard for the selection of appropriate supplementary protective items. For example, if the additional hazard happens to be "Fire Fighting" refer to chapter 14, "Special Safety Protective Clothing and Equipment for Fire, Heat, and Explosion."

11-7 HANDLERS OF CHEMICAL AGENTS AND VESICANT GASES

A. CLOTHING OUTFIT, CHEMICAL PROTECTIVE (fig. 11-8)

Consisting of one CB protective trouser liner, one CB protective shirt liner, three pair protective socks, and one pair protective gloves.

Source: LIN E-40710
NSN 8415-00-782-3240 through 3244 (various sizes)

Use: To provide CB protection to individual soldier. (1) Items are impregnated with modified XXCC3 treatment, which provides CB protection. (2) The outfit, when worn in conjunction with protective mask and hood, and dubbined leather boots or insulated rubber boots, will afford complete protection to the wearer.

Warning: Protective qualities must be maintain-

p 22

Figure 11-9. Suit, Chemical Protective.

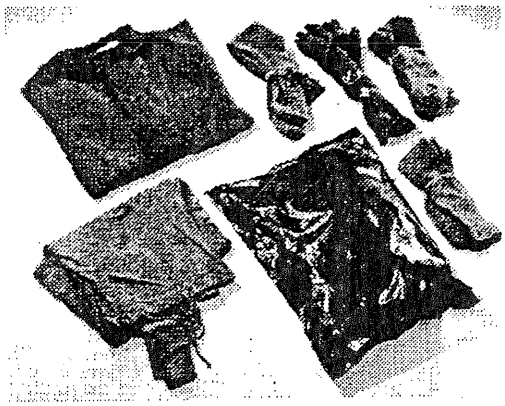


Figure 11-8. Clothing Outfit, Chemical Protective.

ed. The clothing outfit can be reimpregnated by the individual using the Decontaminating and Reimpregnating Kit, M13, or can be reimpregnated in field laundry operations.

B. SUIT, CHEMICAL PROTECTIVE (fig. 11-9)

Source: LIN U57960
NSN 8415-00-177-5007 and 5008
NSN 8415-00-407-1060 through 1064

Use: Used as overgarment consisting of coat and trousers. Per general chemical laboratory; salvage section and ammunition supply depot where chemical ammunition is handled.

Special Requirements:

(1) By personnel performing decontamination who must work in close proximity to contaminated areas and equipment.
(2) By personnel in chemical training.
(3) By hospital personnel for reception of contaminated patients.
(4) By personnel loading contaminated clothing into washing machines.
(5) By individuals and units involved in handling chemical agents and munitions to provide the optimum degree of safety in those instances where the wearing of the toxicological agent protective ensemble is not indicated. Limitations by TSG when the wet-bulb-globe temperature exceeds 75° must be stringently enforced.

11-8 HANDLERS OF TOXIC CHEMICAL AGENTS

The handlers of toxic chemical agents are issued a Protective Outfit of the type shown in fig. 11-10.

Figure 11-10. Handlers of Toxic Chemical Agents, of the type described in Sec. 11-8.

A. IMPERMEABLE, SUPPLIED AIR, M5

(not issued as a unit)

Source: LIN P-79995
NSN 4240-00-670-5095

B. BOOTS, TOXICOLOGICAL AGENTS PROTECTIVE, M2A1

Source: LIN C-08804
NSN 8430-00-820-6295 through 6306 (various sizes)

C. COVERALLS, TOXICOLOGICAL AGENTS PROTECTIVE: AIR FED, M4

Source: LIN U-58031
NSN 8415-00-818-3564 and 3465

Use: To protect against toxic chemical agents that are immediately dangerous to life. Used by

personnel working in chemical agent plants where toxic chemical agents are manufactured or loaded into munitions or demilitarized. A source of low-pressure breathable air is required. Boots, gloves, and suits are available in various sizes. Impregnated underwear and socks should be worn as additional protection, and air supply monitored for carbon monoxide content or buildup.

D. GLOVES, TOXICOLOGICAL AGENTS PROTECTIVE, M4

Source: LIN J-68475
NSN 8415-00-820-6292 through 6294
NSN 8415-00-820-6305

11-9 HANDLERS OF CHEMICAL AGENTS IN MUNITIONS PLANTS

See item above and ensemble, toxicological agents protective (TAP), chapter 10.

ELECTRICAL SAFETY

BASIC RULES OF ELECTRICAL SAFETY

There are ways to work with or near electrical equipment and wiring that will help keep you safe. All workers should follow these rules, whether or not they are electricians.

1) Do not wear rings, watches, or any metal jewelry or ornaments when you are working near electrical circuits. Wear shoes with non-conducting (rubber) soles.
2) Do not use metal ladders or uninsulated metal tools near electricity. Use only intrinsically safe or explosion-proof tools and hand lamps in dangerous locations.
3) Keep electrical machinery free of dust, dirt, and oil. Do not store anything in switch boxes. Keep all switch doors closed. Be sure all equipment meets the requirements of a recognized testing laboratory. Underwriter's Laboratory (UL) and Factory Mutual (FM) are the two best known certifying agencies. Never overload a circuit, even when all equipment is certified.
4) Examine all electrical tools and equipment for signs of damage. Never use faulty power tools. When tools or their cords are damaged, replace them at once.
5) Wires with damaged or deteriorating insulation should be replaced. Only in an emergency, and for temporary use only, should a wire be wrapped with electrical tape.
6) Water and electricity do not mix. Check your work area for puddles and wet surfaces.
7) Use an extinguishing agent designed for electrical fires.
8) The most important rule to follow when making repairs on or near an electrical circuit is to shut off and tag out the power source. Then, to be sure, test the circuit with a current tester or meter before you work on it.

BATTERY SAFETY PRECAUTIONS

The principal hazard in connection with batteries is the danger of acid burns when refilling or when handling them. These burns can be prevented by the proper use of eye shields, rubber gloves, rubber aprons, and rubber boots with non-slip soles. Rubber boots and apron need to be worn when batteries are being refilled. Always wear safety glasses when working around batteries to prevent the possibility of acid burns of the eyes.

Another hazard is the danger of explosion due to the ignition of hydrogen gas given off during battery charging operation. This is especially true where the accelerated (equalizing) charging method is used. Open flames or smoking is prohibited in the battery rooms and the charging rate should be held at a point that will prevent the rapid liberation of hydrogen gas. Manufacturers' recommendations as to the charging rates for various size batteries should be closely followed and the exhaust system should be used.

Particular care should be taken by technicians to prevent short circuits while batteries are being charged, tested, or handled. Hydrogen gas, which is accumulated while charging, is highly explosive and a spark from a shorted circuit could easily ignite the gas, causing serious damage to personnel and equipment.

p 26

U.S. Department of Labor

Occupational Safety and Health Administration
Atlanta East Area Office
LaVista Perimeter Office Park
Building 7, Suite 110
2183 Northlake Parkway
Tucker, Georgia 30084

July 12, 2000

Kay Raney
President AFGE Local 2017
P.O.Box 7680
Fort Gordon, GA 30905

Dear Mr. Raney:

As the enclosed letter indicates, we have been advised by your establishment official that the hazards you reported to the Occupational Safety and Health Administration (OSHA) on 05/30/2000, have been investigated and that corrective action has been taken.

With this information, OSHA feels the case can be closed on the grounds that the hazardous conditions no longer exist. If you do not agree that the conditions you reported have been satisfactorily corrected, please contact us within 10 calendar days. If we do not hear from you within that time period, we will assume that the conditions have been eliminated and we will close our case file.

Your action on behalf of safety and health in the workplace is appreciated.

Sincerely,

for Marianne M. Bonito
R. G. FINNEY
Area Director

Enclosure: Copy of the Federal establishment official's response.

phone 770 493 6644 ext. 3009

p.1

Aug 03 00 09:24a

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON
FORT GORDON, GEORGIA 30905-5000

REPLY TO ATTENTION OF

JUL 12 2000

Signal Safety Division

Mr. R.G. Finney
Occupational Safety and Health Administration
Atlanta East Area Office
LaVista Perimeter Office Park
Building 7, Suite 110
2183 Northlake Parkway
Tucker, Georgia 30084

Dear Mr. Finney:

The following is provided in response to your correspondence of May 30, 2000, concerning alleged hazardous working conditions on the U.S. Army Signal Center and Fort Gordon, Fort Gordon, Georgia, Complaint No. 201281896.

Allegation No. 1: Openings in electrical panel box were not covered to prevent accidental contact with energized components.

Response: There were only two known incidents where an electrical panel was left uncovered during work in order to modify the electrical panel. One incident involves the post maintenance contractor, Johnson Controls World Services (JCWS) personnel and the other involves Utility Monitoring Control System (UMCS) personnel. During each instance, only maintenance personnel entered the room where the panel was located in building 14600. The room houses computer equipment, is normally unoccupied and is not entered by other than maintenance personnel.

At the first occurrence, JCWS was immediately notified to replace the panel cover. The JCWS worker indicated the job to install an emergency circuit was unfinished at the time and inadvertently left the panel uncovered.

The second occurrence involved UMCS personnel who were installing a circuit for a stove in the UMCS break room. Immediately after the condition was identified, their supervisor directed the panel to be closed and asked one of the UMCS workers why the panel was left uncovered. The UMCS worker indicated that a breaker was needed to complete the job. The UMCS worker was reminded by the supervisor of the requirement to leave worksites in a safe condition.

949
4227

Allegation No. 2: UMCS does not have a written emergency plan available to employees.

Response: Standard Operating Procedures (SOP's) are in place sufficient for journeyman technicians to work and operate equipment safely. For extreme emergencies, all Fort Gordon personnel are instructed to call 911 for immediate dispatch of the appropriate agency.

Where?

Allegation No. 3: Changing area and showers inadequate in building's 14600 and 25910.

Response:

Building 14600: Showers were installed in the male and female restrooms when the building was constructed in November, 1976 and are not required but are available for use by all personnel. While somewhat dated but in good condition, the showers and changing area are more than adequate size with ceramic tile floors and surroundings, hot and cold running water, adequate lighting, curtains installed for privacy and a bench for seating in the changing area.

Generator site: Other than an emergency shower/eye wash station, shower are not available at the generator site. Showers and restroom facilities for these personnel are available at building 14600. A portable restroom facility has always been available for use at the generator site. The restroom and shower facilities at the Heating and Cooling Plant, building 25910, (immediately adjacent to the generator site), are primarily for contractor personnel who work at the facility, however, are adequate and are available for use by UMCS employees.

Allegation No. 4: All employees leaving a contamination area are not properly decontaminated. (Contamination of acids from diesel generation units).

Response: Employees do not work in contaminated areas; therefore decontamination is not required or expected during normal operations. At the generator site, UMCS employees are required to perform operational checks of the generators. This includes checking the fluid level of the batteries (not performing maintenance) that are installed below floor level. Occasionally, a battery will require refilling with distilled water and Personal Protective Equipment (PPE) is available when required. In the event of an emergency, 911 personnel would be called so that the response team and hospital personnel could perform decontamination procedures as required. Response teams are no more than minutes and two miles from the generator site. Additionally, two emergency eyewashes and showers are available at the generator site.

Benzines + Acids

Allegation No. 5: UMCS employees who participated, or were expected to participate, and were trained did not receive training of sufficient content and duration to maintain their competencies to safely operate and maintain electric generators. Management did not provide the necessary training and equipment for employees to demonstrate competency to operate EMD power plants and required refresher training at least yearly.

Response: UMCS employees have received adequate training to operate the generators. All employees have successfully operated the plant since receiving initial training in 1995. Additional training was received at each annual inspection of the units and when the Army maintenance team performed repair work on the generators during planned visits. For two years, an Army sergeant with a specialty in this equipment provided on-the-job training. Operators recently received additional refresher training from Engine Systems, Inc. Specifically, the training included: principles of operations, technical data, operating and maintenance manuals, support data, and operator level maintenance. Training is documented. Requests for more in-depth training outside the scope of operations duties have been denied. Operators have learned from military and commercial trainers that more comprehensive, in-depth training associated with extensive overhaul, repair and maintenance is available. UMCS operators have requested training for career advancement; however, this training is beyond the scope of UMCS personnel duties. Current funding and staffing does not allow for training above that which is required for operations.

See yearly reports - See Requests Show Prob

Allegation No. 6: For first aid responders, the employer did not ensure that training was provided to employees with occupational exposure to bloodborne pathogens within 90 days after the effective date of the standard (4 June 92)(29 CFR 1910.1030).

Response: UMCS personnel are not first responders. This designation is reserved for fire, safety, and other emergency personnel. The direction to all employees is to call 911 emergency personnel. Secondarily, UMCS personnel have received CPR training to enhance their job skills.

Allegation No. 7: The employer did not ensure that training for occupational exposure to bloodborne pathogens was conducted at least annually.

Response: UMCS personnel are not first responders. This designation is reserved for fire, safety, and other emergency personnel. The direction to all employees is to call 911 emergency personnel. Secondarily, UMCS personnel have received CPR training to enhance their job skills.

Allegation No. 8: UMCS personnel have received only 3 days of training to qualify to operate generators (Personnel who are fully trained for this type of duty have the following amount of training to qualify to operate generators: 6 months operator school, 6 months electrical school, and 6 months mechanical school).

Response: The training listed in No. 5 above is sufficient for diesel generator operation at Fort Gordon. The magnitude of training noted is typically associated with a military occupational specialty (MOS) for a diesel operator within the military. The mission associated with military diesel operators is substantially different from the mission at Fort Gordon. Military operations involve extensive overhaul, repair, and operation of diesel generating units. As such, there is a commensurate level of required training. UMCS operators do not perform the level of overhaul, repair and operations as military personnel. Generally, diesel operations at Fort Gordon are limited to 1) preliminary operational checks 2) generator starting 3) operational checks and 4) generator shutdown.

See yearly reports for maintenance

Allegation No. 9: Personnel have not had noise testing.

Response: All UMCS employees undergo an annual medical surveillance and screening. Medical surveillance includes audiometric testing and personal fit testing of pre-formed earplugs. The Industrial Hygiene staff periodically updates personnel workplace hazards and data collected is reviewed during the process of providing Occupational Health medical surveillance. See attached memorandum for exact exam dates by employee.

Allegation No.10: There has been no lockout/tag out training, there are no specific procedures for lockout/tag out, and there are no tagging devices for lockout/tag out procedures.

Response: Employees are aware of the requirement for lockout/tag out procedures. They were given verbal instruction, a written procedure to follow, log sheets, and tags for equipment. Employees rewrote the procedure on one of our computers and were to purchase tags as needed. It recently came to our attention that the procedure had "disappeared" and that a "virus" destroyed our files. The procedures are being re-instituted with the use of a commercial program. New logbooks, instruction booklets, locks and new tags are available for all employees' immediate use. The most knowledgeable employee currently has the instruction booklets, and each employee will be instructed and tested. Training is expected to be completed by July 31, 2000.

B/S

Allegation No. 11: There were 3 accidents and no paperwork was done, nor was change made to correct hazard.

Response: Management is not aware of these alleged accidents. Nor are they aware of any hazard that has not been addressed. All employees are aware of the requirement to report accidents. If an accident is reported, a Federal Employee Accident Report, form CA-1 is completed and the employee is immediately taken to the hospital. This has been in effect for years. Any identified hazards will be corrected promptly.

Lie

Allegation No.12: Safety shoe order held up for 6 months, previous order took 14 months.

p31

Response: All required personal protective equipment is provided to employees in accordance with applicable American National Standards Institute (ANSI) guidelines at no cost. In the past, delay for safety shoe replacements are attributed to employee requests for shoe features and designs that were above and beyond those required for the job. Employees were instructed to submit safety shoe requests based on reasonable guidelines.

Lie

If you need any additional information, please contact Mr. Russell Blandin, Safety and Occupational Health Specialist, (706)791-7233.

Sincerely,

Thomas B. Howe
Lieutenant Colonel, U.S. Army
Director of Public Safety

Attachment

Fullbright, Reuben R.
From: Oglesby, Curtis D.
Sent: Friday, September 15, 2000 3:29 PM
To: Fullbright, Reuben R.
Subject: RE: For the record

You have been directed. You will follow those directions. I will not discuss this issue with you here. All the blind copies in the world doesn't change that. Do as you are directed.

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

.....
From: Fullbright, Reuben R.
Sent: Friday, September 15, 2000 3:15 PM
To: Oglesby, Curtis D.
Subject: RE: For the record

I tried that a year ago and he said he was not going to purchase them. He also told me if I didn't like that decision to take it up the line.

-----Original Message-----
From: Oglesby, Curtis D.
Sent: Friday, September 15, 2000 11:13 AM
To: Fullbright, Reuben R.
Cc: Griffin, Gordon D.; Reed, Brenda L.; Pavliscsak, James V.
Subject: RE: For the record

You are to work these issues through Mr Pavliscsak.

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

.....
From: Fullbright, Reuben R.
Sent: Friday, September 15, 2000 9:37 AM
To: Oglesby, Curtis D.
Cc: Griffin, Gordon D.; Reed, Brenda L.; Fullbright, Reuben R.
Subject: For the record

MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for: JJVA([operations)

END ITEM APPLICATION: BLDG # Power Plant

ITEM DESCRIPTION: Acid Apron 48 x 35 Green
QUANTITY: 3 Ea.
COST PER ITEM: $ 13.64
TOTAL COST: $40.92

VENDERS NAME: Grainger

VENDERS PART#: 4T294
VENDERS CATALOG #: 391
VENDERS PAGE#: 2549

VENDERS PH #: (706) 560-0808
VENDERS POC: Gloria

REQUISITIONER: Reuben Fullbright
DATE: 15 Sept 2000

SUBJECT: IMPAC PURCHASE

Just a note for the record:
This morning, Mr. Pavliscsak called me to the rear and asked if I remembered his telling me to order the following items. As I told him I did not, due to the fact that he has never made such a request. He then told my to get them ordered since he had to go pick them up today.
As you can see by the order I sent for jeans 1 year ago, it has taken this long for Mr. Pavliscsak to admit wrong and get protective clothing. During the meantime he told JAG "We didn't need the protective clothing" and then told OSHA "He had supplied all the protective clothing we needed."

NOW after all this I still have 3 pair of burnt up jeans.

1. Request approval for IMPAC purchase and APC for: JJVA([operations)

END ITEM APPLICATION: BLDG # Power Plant

ITEM DESCRIPTION: Gloves Acid Elbow Length, Heavy Wt.
QUANTITY: 3 Pr.
COST PER ITEM: $ 9.11
TOTAL COST: $27.33

VENDERS NAME: Grainger
VENDERS PART#: 2AN06
VENDERS CATALOG #: 391
VENDERS PAGE#: 2522

VENDERS PH #: (706) 560-0808
VENDERS POC: Gloria

REQUISITIONER: Reuben Fullbright
DATE: 15 Sept 2000

Fullbright, Reuben R.

From: Curtis Oglesby [cdo@cris.com]
Sent: Monday, August 16, 1999 9:25 PM
To: Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Reed, Brenda L.; Ellis, William E. Jr
Cc: Brown, Larry J.; Pavliscsak, James V.; Oglesby, Curtis D.
Subject: UMCS

I have been working the issues you raised. After much research, discussions with CPO, etc. I am very close. By the end of the month we will be able to discuss what I am finding and the steps forward.

It has been some time since we met. But these issues did not happen overnight nor can I fix them overnight. Have a little more patience with me.

Glenn is working hard to invest our GA Power credits into the generator plant and other infrastructure projects. I explained the long-term goal to each of you. We are moving forward.

In your careers, we will not move into a new building, field a new UMCS system, run the generators for a total almost 2000 hours, make major renovations to the generators, make major repairs to the generators, and do several building projects, ALL IN ONE YEAR.

UMCS EVENTS LOG SUPPLIMENT | DATE: 5 Sept 00 | PAGE ___ of ___ PAGES

TIME	BUILDING	WHO CALLED	PHONE NO.	EVENT
				Going to check hours at
				Gents
	PP			ADD ~~point to~~ Wy Display to
				Indicate power loss
731	GP			Recived daily Report on system
				printer
		Rick		Working on parts locker for Vanes
	21606			IA compress HR 29299
	21708	Gorny Reuben		Checking on comline wiring
123	14401	Dees		Called about problem in building.
1400	14600	JVP		Leak over JVP office, DE 29334
		Gorny		UP DATING comline ~~pr~~ Drawing for
				21000 Area
	33513	Reuben		Changing plug on Roter
	29602	Kenny		Checked chill water pump control
		Chuck		RC Products stopped by
		Bill OH		to see Mr Pauliscsak
1600				Work on Point Allocations
1640	28411 25411			Assist JCWS on DHW temps
1700	25411			Assist CPC
				KC working on getting 660 to
				print. Prints from two. I'm so happy
2115		Bill E.		Call Granddaughter MACY was
				born today 21" long 10 lbs.
				assisted mechanic

UMCS EVENTS LOG				DATE: 05 Sept. 00	PAGE 1 of		
OVERTIME OPERATOR / PROJECT	INIT.	TIME IN	TIME OUT	SHIFT OPERATOR NAME	INIT.	TIME IN	TIME OUT
				Combs	DDC	00:01	08:00
				Fullbright		07:30	16:00
				Rusek	RR	07:30	16:00
				Griffin		08:00	16:00
				Reed		16:00	24:00
				Skvarca		16:00	24:00

TIME	BUILDING	WHO CALLED	PHONE NO.	EVENT
1200				Taking over shift. Read shift log
				Checking Bldgs for Problems
				Monitoring ESO's.
				Checked E-mail
				Made up w/o for Dorsett's,
0838	33720			Called Karen. Air Compressor down (ESO)
	21606			Called Karen. Air Compressor down.
0840		Karen	4244	Gave Her Info on Hospital Run
				for Today
		Reuben		Getting gas key for UTV
		Gordy		Checking E-Mail
		Rick		with James going over his leaving inventory
	29603			IFC 126 Failed SO# 619
	25425			IFC127 Failed SO# 620
	[illegible]412			Air compressor down, CD 29239
	21610			Set AC to come on for cooling
	4814	RRF		Went and got fuel key for Green
				Beast -
	29718	S/O Desk		Alarm going off, went out and
				checked, Simplex Fire/Security
				alarm - Told to call 5520

Found 31/00 in Mail - 10/18/00 th

P37

Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation

NLT NME

U.S. Departme... of Labor
Employment Standards Administration
Office of Workers' Compensation Programs

ployee: Please complete all boxes 1 - 15 below. Do not complete shaded areas.
ness: Complete bottom section 16.
loying Agency (Supervisor or Compensation Specialist): Complete shaded boxes a, b, and c.

Employee Data

1. Name of employee (Last, First, Middle): Fullbright, Reuben Ray
2. Social Security Number: 255-86-1932
3. Date of birth: Mo. 05 Day 23 Yr. 56
4. Sex: ☑ Male ☐ Female
5. Home telephone: (706) 556-6287
6. Grade as of date of injury: WG11-5 Level Step
7. Employee's home mailing address (Include city, state, and ZIP code): 1585 Hinton Wilson Rd. Harlem Ga. 30814
8. Dependents: ☐ Wife, Husband ☑ Children under 18 years ☐ Other

Description of Injury

9. Place where injury occurred (e.g. 2nd floor, Main Post Office Bldg., 12th & Pine): Bldg. 29707, Equipment room stairwell, flooded area,

10. Date injury occurred: Mo. 10 Day 18 Yr. 00 — Time: 20:00 ☐ a.m. ☑ p.m.
11. Date of this notice: Mo. 10 Day 25 Yr. 00
12. Employee's occupation: Industrial Instrument Mechanic

13. Cause of injury (Describe what happened and why): Gordy and I went down to repair Comm Line, Stairwell was flooded, had to walk thru water, wetting boots, boots leak - since they are over 2 years old, insulation got wet, did not have extra (dry) pair - caused Jungle Rot -

14. Nature of injury (Identify both the injury and the part of body, e.g., fracture of left leg): Right foot, Jungle (Foot) Rot between 3rd and 4th igit - at present treating with Tinactin

a. Occupation code: WG-2606-11/5
b. Type code: 700
c. Source code: 0110
OWCP Use - NOI Code:

ployee Signature

15. I certify, under penalty of law, that the injury described above was sustained in performance of duty as an employee of the United States Government and that it was not caused by my willful misconduct, intent to injure myself or another person, nor by my intoxication. I hereby claim medical treatment, if needed, and the following, as checked below, while disabled for work:

☑ a. Continuation of regular pay (COP) not to exceed 45 days and compensation for wage loss if disability for work continues beyond 45 days. If my claim is denied, I understand that the continuation of my regular pay shall be charged to sick or annual leave, or be deemed an overpayment within the meaning of 5 USC 5584.

☐ b. Sick and/or Annual Leave

I hereby authorize any physician or hospital (or any other person, institution, corporation, or government agency) to furnish any desired information to the U.S. Department of Labor, Office of Workers' Compensation Programs (or to its official representative). This authorization also permits any official representative of the Office to examine and to copy any records concerning me.

Signature of employee or person acting on his/her behalf [signature] **Date** 25 Oct 00

Any person who knowingly makes any false statement, misrepresentation, concealment of fact or any other act of fraud to obtain compensation as provided by the FECA or who knowingly accepts compensation to which that person is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both.

Have your supervisor complete the receipt attached to this form and return it to you for your records.

Witness Statement

16. Statement of witness (Describe what you saw, heard, or know about this injury)

Starwell was flooded Reuben when ahead of me to unlock the door to the equipment Room walking through the water.

ORDON D GRIFFIN — ne of witness
[signature] — Signature of witness
26 Oct 00 — Date signed
4485 STAGECOACH RD — Address
Thomson — City
GA — State
30824 — ZIP Code

Form CA-1
Rev. Sept. 1993

Duty Status Report

U.S. Department of Labor
Employment Standards Administration
Office of Workers' Compensation Programs

1/24/01 P58

This form is provided for the purpose of obtaining a duty status report for the employee named below. This request does not constitute authorization for payment of medical expense by the Department of Labor, nor does it invalidate any pr s authorization issued in this case. This request for information is authorized by law (5 USC 8101 et seq.). I on collected will be handled and stored in compliance with the Freedom of Information Act, the Privacy Act of 1s the OMB Cir. A-108.

OMB No. 1215-0103
Expires: 10-31-94

OWCP File Number (If known)

SIDE A - Supervisor: Complete this side and refer to physician

1. Employee's Name (Last, first, middle)
Fullbright, Newton Ray

2. Date of Injury (Month, day, yr.)
10/18/00

3. Social Security No.

4. Occupation
Electronic Mechanic

5. Describe How the Injury Occurred and State Parts of the Body Affected
Wet Feet.

6. The Employee Works
8 Hours Per Day 7 Days Per Week

7. Specify the Usual Work Requirements of the Employee. Check Whether Employee Performs These Tasks or Is Exposed Continuously or Intermittently, and Give Number of Hours.

Activity	Continuous	Intermittent	
a. Lifting/Carrying: State Max Wt.	#lbs.	#lbs. 50	.1 Hrs Per Day
b. Sitting		✓	4 Hrs Per Day
c. Standing		✓	2 Hrs Per Day
d. Walking		✓	2 Hrs Per Day
e. Climbing		✓	.1 Hrs Per Day
f. Kr ng		✓	.1 Hrs Per Day
g. /Stooping		✓	.1 Hrs Per Day
h. Twisting		✓	.1 Hrs Per Day
i. Pulling/Pushing		✓	.1 Hrs Per Day
j. Simple Grasping		✓	.5 Hrs Per Day
k. Fine Manipulation (Includes keyboarding)		✓	.4 Hrs Per Day
l. Reaching above Shoulder		✓	.1 Hrs Per Day
m. Driving a Vehicle (Specify)		✓	.5 Hrs Per Day
n. Operating Machinery (Specify) Hand tools		✓	.1 Hrs Per Day
o. Temp. Extremes		✓	range in 2 degrees F
p. High Humidity		✓	2 Hrs Per Day
q. Chemicals, Solvents etc. (Identify) OIL [illegible]		✓	.1 Hrs Per Day
r. Fumes/Dust (Identify)		✓	.1 Hrs Per Day
s. Noise (Give dBA)		✓	85 dBA 2 Hrs Per Day
t. Other (Describe)			

SIDE B - Physician: Complete this side

8. Does the History of Injury Given to You by the Employee Correspond to that Shown in Item 5? ☑ Yes ☐ No (If not, describe)

9. Description of Clinical Findings
T. tender

10. Diagnosis Due to Injury
NS

11. Other Disabling Conditions
Wet Boots

12. Employee Advised to Resume Work?
☑ Yes, Date Advised 1/24/01 ☐ No

13. Employee Able to Perform Regular Work Described on Side A?
☑ Yes, If so ☑ Full-Time or ☐ Part-Time _____ Hrs Per Day
☐ No, If not, complete below:

Continuous	Intermittent	
#lbs.	#lbs.	Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		range in degrees F
		Hrs Per Day
		Hrs Per Day
		Hrs Per Day
		dBA Hrs Per Day

14. Are Interpersonal Relations Affected Because of a Neuropsychiatric Condition? (e.g. Ability to Give or Take Supervision, Meet Deadlines, etc.) ☐ Yes ☑ No (Describe)

15. Date of Examination
24 Jan 01

16. Date of Next Appointment

17. Specialty
PBC

18. Tax Identification Number

19. Physician's Signature
[signature]

20. Date
24 Jan 01

1/24/01 P39

AUTHORIZED FOR LOCAL REPRODUCTION

MEDICAL RECORD	CHRONOLOGICAL RECORD OF MEDICAL CARE

DATE	SYMPTOMS, DIAGNOSIS, TREATMENT, TREATING ORGANIZATION *(Sign each entry)*
Jan 01	ALLERGIES: MEDS:
BP /	S/O 45 y/o ♂ cw explosive
P	A c̄ T. pedis 2° to
T	wet boot exposure →
	nearly resolved.
	P needs 2 pr safety boots
	rep
	PTW PAC
	PATRICK T. WALTERS, PA-C DAC 581-74-3763 Physician Assistant
NL WT	
TODAY	
PREGNANT	Y/N
VA	
R20/	
L20/	

PREVENTION INFO: BSE/TSE_____ SEAT BELTS/CAR SEATS_____ DRINKING & DRIVING_____
EXERCISE_____ SMOKING CESSATION_____ OTHER:_____

HOSPITAL OR MEDICAL FACILITY TMC # 3 EAMC	STATUS	DEPART./SERVICE	RECORDS MAINTAINED AT
SPONSOR'S NAME	SSN/ID NO.	RELATIONSHIP TO SPONSOR	

PATIENT'S IDENTIFICATION: *(For typed or written entries, give: Name - last, first, middle; ID No or SSN; Sex; Date of Birth; Rank/Grade.)*	REGISTER NO.	WARD NO.

Pullbright, R.
255-86-1932

CHRONOLOGICAL RECORD OF MEDICAL CARE
Medical Record
STANDARD FORM 600 (REV. 6-97)
Prescribed by GSA/ICMR
FIRMR (41 CFR) 201-9.202-1

P 40

*U.S.GPO:1996-440-926

INDIVIDUAL SICK SLIP

☐ ILLNESS ☐ INJURY

DATE: 24 Jan 01

LAST NAME - FIRST NAME - MIDDLE INITIAL OF PATIENT: Rellberg Pt. R

ORGANIZATION AND STATION:

SERVICE NUMBER/SSN: 255-88-1732

GRADE/RATE:

UNIT COMMANDER'S SECTION

IN LINE OF DUTY:

REMARKS:

SIGNATURE OF UNIT COMMANDER:

MEDICAL OFFICER'S SECTION

IN LINE OF DUTY:

DISPOSITION OF PATIENT: ☑ DUTY ☐ QUARTERS ☐ SICK BAY ☐ HOSPITAL ☐ NOT EXAMINED ☐ OTHER (Specify):

REMARKS: This employee should have 2 pair of safety Boots. Also needs safety glasses.

SIGNATURE OF MEDICAL OFFICER: [signature]

PATRICK T. WALTERS, PA-C
DAC 561-74-3763
Physician Assistant

DD FORM 1 MAR 63 689

PREVIOUS EDITIONS ARE OBSOLETE.

P41

APPT 0920
ARRIVED 0914

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-400; the proponent agency is the Office of The Surgeon General.

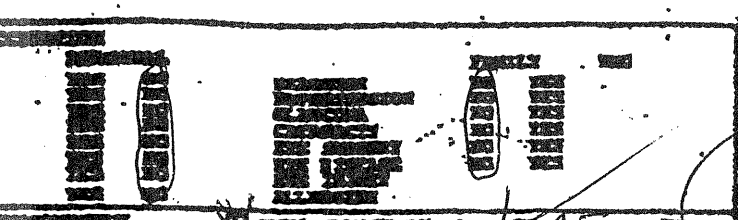
DR Solverson

IT TITLE: OPTOMETRIC EVALUATION | AGE 44 | SEX M | OTHER APPROVERS (Name)

CHIEF COMPLAINT & CASE HISTORY: SCREENING TECHNICIAN Sol-glass Rx

Retin Exam & Refinement LEE 1/2 TB

Eyeglass Rx needed



CORNEA: NON CONTACT OD 15 OS 14

☐ DEFICIENCY ☐ ACTIVITY

MEDICATIONS: NA

UNAIDED VA	PRESENT PRESCRIPTION	AIDED VA
OD 20/80		OD 20/
OS 20/20		OS 20/
OD 20/25		OD 20/
OS 20/25		OS 20/

CR: L / L | IOP: N

OFILS: Sterile | MOTILITY: Ortho | PD 64/61

TERMINAL: 1.0% TROPICAMIDE 2.5% PHENYLEPHRINE TIME

OPHTHALMOSCOPY & SLIT LAMP

VD: .2 C/D .2 A/V — MACULA — Hyperemia

LIDS, LASHES, CONJ, CORNEA, LENS, ANGLES — Sol-core 4/4

RETINOSCOPY
OD
OS

SUBJECTIVE
OD Ref +0.25 sph 20/20
OS 20/20

PHORIAS DIST +1.00 Add NEAR VERT

NEAR POINT & AUXILLARY TESTING
+1.00 Add 20/20
Bl-Cyl +1.75 / 10.5d

DIAGNOSIS: Presbyopia
Bilateral pterygium with ?

PLAN: Biocard Polycarb. Surgery
DFE w/ C&D. RTC
for pterygia as above.

FINAL PRESCRIPTION
R Ref +0.25 sph / +1.00 (+1.25 Add) Add BIFO

PREPARED BY (Name, Title, Grade, Service, Telephone): LUTHER D. SOLVERSON, O.D.
COL, MS 396-42-4439
CHIEF, OPTOMETRY SVC

DEPARTMENT/SERVICE/CLINIC: OPTOMETRY, FT GORDON, GA

DATE: 8-4-00

PATIENT'S IDENTIFICATION (For typed or written entries, place Name – last, first, middle initial; Social Security or Military Service Number)

Fullbright, Reuben
20/255-86-1932
WG-11

☐ PHYSICAL EXAMINATION ☐ FLOW CHART
☐ OTHER EXAMINATION OR EVALUATION ☐ OTHER (Specify)
☐ DIAGNOSTIC STUDIES
☐ TREATMENT

VA – Visual Acuity
Dist – Distance
Vert – Vertical

DA FORM 4700

EAMC OP 122, 1 Jul 85

P42

Pavliscsak, James V.

Subject: CA-1 Fullbright

I disagree with this report. I found in with some mail in my inbox located in the UMCS Master Control Room. I believe this to be part of Mr. Fullbright's 3 year campaign to get the unauthorized safety shoes that he desires.

Mr. Fullbright was not on duty but Mr. Griffin was and I questioned him. He stated that it happened on second shift. I asked him if he also got his feet wet. He stated "No", I stepped on Reuben's shoes to get into the equipment room". I pointed out that they weren't working together on the day he mentioned and he said he wasn't sure which day it was but he remembers it did happen.

I later questioned Mr. Fullbright and got basically the same story. Mr. Fullbright stated that he got athletes foot fungus and that he was treating it with Tinactin which seems to be keeping it under control. He also stated he put in the CA-1 just in case he had any future problems.

James Pavliscsak 3/10/00

Note: This was an E-Mail but notice, there is no header (dated) This was not in OH file as of 1/24/01 - Please have original pulled to show false dating.

10/6/99 P43

Fullbright, Reuben R.
From: Fullbright, Reuben R.
Sent: Wednesday, October 06, 1999 4:27 PM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Griffin, Gordon D.; Fullbright, Reuben R.
Subject: PR- Safety Shoes- RRF

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: safety shoes

ITEM: safety shoes
QUANTITY: 1 pair
COST PER ITEM: 167.44
TOTAL COST: 167.44

ITEM DESCRIPTION: 9" LOGGER GORE-TEX
MANUFACTURES NAME: IRON AGE
MANUFACTURES PART#: 628

VENDERS NAME: IRON AGE SAFETY SHOES
VENDERS ADDRESS: 3240 PEACH ORCHID RD, AUGUSTA, GA 30906

VENDERS PH#: (706) 771-0666
VENDERS POC: JANET

VENDERS PART#: 628
VENDERS CATALOG#: 1999
VENDERS PAGE#: 55, 62

REQUISITIONER: REUBEN FULLBRIGHT
DATE: 6 Oct. 1999

P44 11/11/99

Fullbright, Reuben R.

m: Reed, Brenda L.
t: Thursday, November 11, 1999 11:08 AM
Pavliscsak, James V.
Subject: FW: PR safety shoes amended

All shoes but two are on the GSA contract, I have emailed OREa to have the other two pair added to the list. They meet all the requirements for OSHA, Safety etc. Please submit to Stacy so that I may order these, or at least the GSA shoes.

MEMORANDUM THRU Brenda Reed
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:
   APC:JJVA (OPERATIONS)
   End item application: UMCS Operations Safety

2. Total Cost:$791.75

3. QUANTITY: 1 pr. 167.44 style 628 Fullbright GSA
   1 pr. 121.94 style 611 Skvarca GSA
   1 PR. 150.15 style 259 Rusek GSA
   1 pr. 98.80 style 289 Griffen GSA
   1 pr. 75.05 style 449 Reed
   1 pr. 62.70 style 793 Combs
   1 pr. 115.57 style 235 Poston GSA
   JUSTIFICATION: Replace yearly safety shoes for personal protection
   all safety shoes listed meet all safety requirements

5. VENDER: Iron Age Safety Shoes
   3240 Peach Orchid Rd.
   Augusta, Ga 30906
   phone:771-0666 POC:Janet

6.

MANUFACTURES	Part#	DESCRIPTION:		
Iron Age Safety Shoes	628	9" Logger Gore-tex	size	(RF)
	611	8" wtrproof Gore-Tex	size 9m	(NS)
	259	electrical hazard boot	size 8r	(RR)
	289	9" uniform boot	size 9.5r	(GG)
	449	Terrain hiker	size 8w	(br)
	793	work oxford	size 10w	(dc)
	235	8" duraflex boot	size 8.5d	(cp)

7. REQUESTOR: R. Fullbright Rusek
   N. Skvarca Griffen
   Date: 01Nov99

P 45

Fullbright, Reuben R.
From: Reed, Brenda L.
Sent: Monday, November 01, 1999 1:53 PM
To: Jones, Hugh S.
Subject: PRsafety shoes amended(orig 06Oct99) (added 5 people 1Nov99) (12Dec99)(01-01-00)(27FEB00)

4TH TIME I HAVE SENT THE SAME REQUEST, AND TWICE HAVE ASKED VERBALY FOR A STATUS. WHAT SEEMS TO BE THE PROBLEM? ALL PAPER WORK WAS WALKED THRU (SAFETY, OCC HEALTH, & MS HILL. THIS WAS DONE LAST YEAR ALL THESE SHOES WERE PLACED ON GSA CONTRACT. 4 MONTHS IS A BIT SLOW NOT TO GET AN ANSWER .

I need a reply if I can order these shoes or not.

MEMORANDUM THRU Brenda Reed
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:
   APC:JJVA (OPERATIONS)
   End item application: UMCS Operations

2. Total Cost:$791.75

3. QUANTITY: 1 pr. 167.44 style 628 Fullbright GSA
   1 pr. 121.94 style 611 Skvarca GSA
   1 PR. 150.15 style 259 Rusek GSA
   1 pr. 98.80 style 289 Griffen GSA
   1 pr. 75.05 style 449 Reed GSA
   1 pr. 62.70 style 793 Combs
   1 pr. 115.57 style 235 Poston GSA
4. JUSTIFICATION: Replace yearly safety shoes for personal protection
   all safety shoes listed meet all safety requirements

5. VENDER: Iron Age Safety Shoes
   3240 Peach Orchid Rd.
   Augusta, Ga 30906
   phone:771-0666 POC:Janet

6. MANUFACTURES Part# DESCRIPTION:

Iron Age Safety Shoes	628	9" Logger Gore-tex	size	(RF)
	611	8" wtrproof Gore-Tex	size 9m	(NS)
	259	electrical hazard boot	size 8r	(RR)
	289	9" uniform boot	size 9.5r	(GG)
	449	Terrain hiker	size 8w	(br)
	793	work oxford	size 10w	(dc)
	235	8" duraflex boot	size 8.5d	(cp)

7. REQUESTOR: R. Fullbright Rusek
   N. Skvarca Griffen
   Date: 01Nov99

Fullbright, Reuben R.
From: Reed, Brenda L.
Sent: Friday, November 12, 1999 7:40 AM
To: Pavliscsak, James V.
Subject: FW: GSA Contract for Safety Shoes

FYI. I will go to these two places and get them to sign off for Doug's and my shoes.

-----Original Message-----
From: Hill, Olaree D.
Sent: Friday, November 12, 1999 5:59 AM
To: Reed, Brenda L.
Subject: RE: GSA Contract for Safety Shoes

I do not get involved with local purchase any more. But I will tell you what you need to do. Just get a memo signed by Safety and Preventive Medicine approving the shoes, then you can purchase. This is necessary before they can be added to any contract. Reference AR 385-10. Let me know if I can be of further help, Ree
Have a nice day!
Olaree D. Hill, Chief Supply, DPW/L

.....
From: Reed, Brenda L.
Sent: Thursday, November 11, 1999 11:21 AM
To: Hill, Olaree D.
Subject: GSA Contract for Safety Shoes

Olaree,

It is that time of year again and I am ordering safety shoes. I have two pair not on the GSA Contract as of yet. Could you please add them to the list.

They are Style 449 (ladies) terrain hiker priced at 75.05. I went to Iron Age and tried several shoes on and these did not hurt my feet, also they are less expensive.

Style 793 (men) low cut oxford tie, new . These are for Doug Combs and he also has a hard time getting a shoe to fit his foot.

I have a note faxed from iron age stating these two shoes do meet all the safety requirements.

Let me know if you need this paper from Janet and I will bring it over to you.

Thanks,
Brenda

P47

Fullbright, Reuben R.
From: Reed, Brenda L.
Sent: Saturday, January 01, 2000 4:46 PM
To: Pavliscsak, James V.
Subject: FW: PRsafety shoes amended(orig 06Oct99) (added 5 people 1Nov99) (12Dec99)(01-01-00)

-----Original Message-----
From: Reed, Brenda L.
Sent: Monday, November 01, 1999 1:53 PM
To: Jones, Hugh S.
Subject: PRsafety shoes amended(orig 06Oct99) (added 5 people 1Nov99) (12Dec99)(01-01-00)

I need a reply if I can order these shoes or not.

MEMORANDUM THRU Brenda Reed
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:
   APC:JJVA (OPERATIONS)
   End item application: UMCS Operations

2. Total Cost:$791.75

3. QUANTITY: 1 pr. 167.44 style 628 Fullbright GSA
   1 pr. 121.94 style 611 Skvarca GSA
   1 PR. 150.15 style 259 Rusek GSA
   1 pr. 98.80 style 289 Griffen GSA
   1 pr. 75.05 style 449 Reed
   1 pr. 62.70 style 793 Combs
   1 pr. 115.57 style 235 Poston GSA
4. JUSTIFICATION: Replace yearly safety shoes for personal protection
   all safety shoes listed meet all safety requirements

5. VENDER: Iron Age Safety Shoes
   3240 Peach Orchid Rd.
   Augusta, Ga 30906
   phone:771-0666 POC:Janet

6. MANUFACTURES Part# DESCRIPTION:

Iron Age Safety Shoes	628	9" Logger Gore-tex	size	(RF)
	611	8" wtrproof Gore-Tex	size 9m	(NS)
	259	electrical hazard boot	size 8r	(RR)
	289	9" uniform boot	size 9.5r	(GG)
	449	Terrain hiker	size 8w	(br)
	793	work oxford	size 10w	(dc)
	235	8" duraflex boot	size 8.5d	(cp)

7. REQUESTOR: R. Fullbright Rusek
   N. Skvarca Griffen
   Date: 01Nov99

4/7/00 RR P48

Fullbright, Reuben R.
From: Rusek, Richard D.
Sent: Friday, April 07, 2000 1:50 PM
To: Pavliscsak, James V.
Subject: PR Boots, Safety (Rusek)

boots1.tif

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR: BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

END ITEM APPLICATION: Personal Protective Equipment (Rusek)

ITEM DESCRIPTION: Boot, Safety, 10" internal metatarsal, Puncture Resistant, Electrical Hazard, Size 8D

QUANTITY: 1
COST PER ITEM: $150.15
TOTAL COST: $150.15

VENDER'S NAME: Iron Age
VENDER'S PART NUMBER: 259
VENDER'S CATALOG: 1999
VENDER'S PAGE: 68

VENDER'S PH#: 771-0666
VENDER'S POC: Janet

REQUISITIONER: Rusek
DATE: 4/7/00

Additional Remarks/Justification: Requested boots provide superior ankle protection and support. The 10" high leather uppers provide shin protection which could prevent or significantly reduce the likelihood of an injury similar to that suffered by Mr. Fullbright. The vibram soles, along with the Gore-Tex breathable/waterproof liner make the boot less fatiguing when worn for extended periods of time. This boot style was previously approved and purchased for my wear. Picture attached.

P49

Fullbright, Reuben R.

m:	Pavliscsak, James V. Fullbright, Reuben R.
it:	Thursday, April 13, 2000 2:58 PM
Subject:	Read: PR- Safety Shoes- RRF

4/13/00

Your message

To:	Pavliscsak, James V.
Cc:	Reed, Brenda L.; Griffin, Gordon D.; Fullbright, Reuben R.
Subject:	PR- Safety Shoes- RRF
Sent:	10/6/99 4:27 PM

10/6/99

was read on 4/13/00 2:56 PM.

9/24/00
P50

Fullbright, Reuben R.
From: Fullbright, Reuben R.
Sent: Sunday, September 24, 2000 8:39 PM
To: Pavliscsak, James V.
Cc: Griffin, Gordon D.; Fullbright, Reuben R.; Reed, Brenda L.
Subject: PR Safety Boots

Here is the last order you received for my safety boots, and since you held up for 6 months before reading the order and then delayed for the next 5 months, I am now a year behind for shoes and since you just came up with a policy, a year after the order Please fill the last request as follows:

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: safety shoes

ITEM: safety shoes
QUANTITY: 1 pair
COST PER ITEM: 167.44
TOTAL COST: 167.44

ITEM DESCRIPTION: 9" LOGGER GORE-TEX
MANUFACTURES NAME: IRON AGE
MANUFACTURES PART#: 628

VENDERS NAME: IRON AGE SAFETY SHOES
VENDERS ADDRESS: 3240 PEACH ORCHID RD, AUGUSTA, GA 30906

VENDERS PH#: (706) 771-0666
VENDERS POC: JANET

VENDERS PART#: 628
VENDERS CATALOG#: 1999
VENDERS PAGE#: 55, 62

REQUISITIONER: REUBEN FULLBRIGHT
DATE: 6 Oct. 1999

Thank You, Reuben

P51

Fullbright, Reuben R.
From: Reed, Brenda L.
Sent: Thursday, January 25, 2001 9:02 AM
To: Pavliscsak, James V.
Cc: Fullbright, Reuben R.; Reed, Brenda L.
Subject: pr safety boots RRF

1/25/01

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:
   APC:JJVA (OPERATIONS)
   End item application: UMCS Operations Safety

2. Total Cost:$157.20 + 128.31= $285.51

3. QUANTITY: 1 pr. each (2 pair per prescription)

4. VENDER: Iron Age Safety Shoes
   3240 Peach Orchid Rd.
   Augusta, Ga 30906
   phone:771-0666 POC:Janet

5. MANUFACTURES Iron age Part# 727 and 725
   9' insulated. 100% waterproof electrical hazard, steel toe, 10W
   8' insulated, 100 waterproof, electrical hazard, steel toe, 10W
6. REQUESTOR: Fullbright
   Date: 25Jan01

Both shoes on GSA contract per Janet at Iron Age.

P52

Fullbright, Reuben R.

From: Pavliscsak, James V.
Sent: Friday, February 09, 2001 10:59 AM 2/9/01
To: Fullbright, Reuben R.
Cc: Oglesby, Curtis D.
Subject: Safety footwear

Footwear purchase is approved. However, you need to send me your size. You failed to include it on the PR.

P53

Fullbright, Reuben R.
From: Fullbright, Reuben R.
Sent: Friday, February 09, 2001 4:14 PM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Fullbright, Reuben R.
Subject: PR Safety Footwear RRF

2/9/01

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:
   APC:JJVA (OPERATIONS)
   End item application: UMCS Operations Safety

2. Total Cost:$157.20 + 128.31= $285.51

3. QUANTITY: 1 pr. each (2 pair per prescription)

4. VENDER: Iron Age Safety Shoes
   3240 Peach Orchid Rd.
   Augusta, Ga 30906
   phone:771-0666 POC:Janet

5. MANUFACTURES Iron age Part# 727 and 725
   9' insulated. 100% waterproof electrical hazard, steel toe, 10W
   8' insulated, 100 waterproof, electrical hazard, steel toe, 10W
6. REQUESTOR: Fullbright
   Date: 09 Feb 01

P54

Brenda Reed

From: "Reed, Brenda L." <reedb@gordon.army.mil>
To: "'BrenReed'" <brenreed@knology.net>
Sent: Sunday, April 09, 2000 3:58 PM
Subject: FW: Reschedule eye exams

Brenda Reed
UMCS Operations
PWD,DPW
706-791-6423/4148

> -----Original Message-----
> From: Pavliscsak, James V.
> Sent: Friday, April 07, 2000 6:19 PM
> To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; -
> Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; -
> Skvarca, Neal
> Subject: Reschedule eye exams
>
> All purchase request for safety glasses are canceled. Reschedule your eye
> exam and be sure your prescription meets the POLICY FOR SAFETY EYEGLASSES
> I sent you. Schedule your exam for hours when you are working.

Note
Approved/funded/ordered
why weren't they canceled
before they went thru the
entire process, since
GVP had to approve the
request

5/18/00

P55

Brenda Reed

From: "Reed, Brenda L." <reedb@gordon.army.mil>
To: "'BrenReed'" <brenreed@knology.net>
Sent: Sunday, April 09, 2000 3:58 PM
Subject: FW: POLICY FOR SAFETY EYEGLASSES

Brenda Reed
UMCS Operations
PWD,DPW
706-791-6423/4148

Recvd 2 days after 5 pr of safety glasses had been approved, & funded.

> -----Original Message-----
> From: Pavliscsak, James V.
> Sent: Friday, April 07, 2000 6:21 PM
> To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
> Subject: POLICY FOR SAFETY EYEGLASSES
>
> 1. Eye examinations are conducted every two years.
>
> 2. New eyeglasses if needed shall be purchased for you and shall meet The following criteria.
>
> a. Lenses shall be Industrial thickness Polycarbonate (one of the following):
> 1) ST28
> 2) ST25
> 3) ST TRIFOCAL
> 4) ADAPTOR PROGRESSIVE
>
> b. Frames shall be plastic industrial thickness safety type

according to Regs - intense heat frames ~~shield~~ be metal

> c. Extras required
> 1) Permanent side shields
> 2) UV coating
> 3) Scratch coat
>
> d. Extras recommended
> 1) Case
> 2) Chums
>
>
>
>
>

5/18/00

P56

Brenda Reed

From: "Reed, Brenda L." <reedb@gordon.army mil>
To: "'BrenReed'" <brenreed@knology.net>
Sent: Sunday, April 09, 2000 3.57 PM
Subject: FW: PR Safety Glasses - Reed

Brenda Reed
UMCS Operations
PWD,DPW
706-791-6423/4148

> -----Original Message-----
> From: Pavliscsak, James V.
> Sent: Friday, April 07, 2000 5:26 PM
> To: Reed, Brenda L.
> Cc: Oglesby, Curtis D.
> Subject: RE: PR Safety Glasses - Reed
>
> Request denied - does not meet requirements Additional info will be sent.
>
>
> -----Original Message-----
> From: Reed, Brenda L.
> Sent: Tuesday, 28 March, 2000 6:53 PM
> To: Pavliscsak, James V.
> Subject: PR Safety Glasses - Reed
>
>
>
> MEMORANDUM THRU James Pavliscsak
> MEMORANDUM THRU Curtis D. Oglesby
> MEMORANDUM THRU Stacy Jones
> MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman
>
> SUBJECT: IMPAC PURCHASE
>
> 1. Request approval for IMPAC purchase and APC for:
>
> END ITEM APPLICATION: (Operations)
>
> ITEM DESCRIPTION:safety glasses
> QUANTITY: 1 pr
> COST PER ITEM: 217.00
> TOTAL COST: 217.00
> VENDERS NAME:Unicor Optic
> VENDERS PART Brenda Reed

5/22/00

3/28/00

P57

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Wednesday, August 30, 2000 2:04 PM
To: Griffin, Gordon D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: PR SPLASH PROTECTION

Disapproved - See me on this.

-----Original Message-----
From: Griffin, Gordon D.
Sent: Wednesday, 26 July, 2000 9:45 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: PR SPLASH PROTECTION

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: (BATTERY FILLING AT POWER PLANT)

ITEM: SPLASH PROTECTION
QUANTITY: 16 EA
COST PER ITEM: 6.20
TOTAL COST: $ 99.20

ITEM DESCRIPTION: TYVER QC SPLASH PROTECTION FOR ACID HANDLING
MANUFACTURES NAME: N/A
MANUFACTURES PART#: N/A

VENDERS NAME: DIRECT SAFETY COMPANY
VENDERS ADDRESS: PO BOX 27648 TEMPE, ARIZONA 85285-7648

VENDERS PH#: 1-800-528-7405
VENDERS POC: N/A

VENDERS PART#: N05-929 SIZES 4 at 2X 4 at XL 4 at L 4 at M
VENDERS CATALOG#: MAY-AUGUST CAT. 2000
VENDERS PAGE#: 33

REQUISITIONER: GORDON GRIFFIN
DATE: 26 JULY 00

p58

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Wednesday, August 30, 2000 2:05 PM
To: Griffin, Gordon D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: pr protective wear

disapproved - see me on this.

-----Original Message-----
From: Griffin, Gordon D.
Sent: Wednesday, 26 July, 2000 11:12 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: pr protective wear

MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

APC: JJVA([operations)

END ITEM APPLICATION: (BATTERY FILLING AT POWER PLANT)

ITEM: COVERALL
QUANTITY: 32 EA
COST PER ITEM: 4.20
TOTAL COST: $ 134.40

ITEM DESCRIPTION: TYVER PROTECTIVE WEAR COVERALL(with elastic wrists/ankles)
MANUFACTURES NAME: N/A
MANUFACTURES PART#: N/A

VENDERS NAME: DIRECT SAFETY COMPANY
VENDERS ADDRESS: PO BOX 27648 TEMPE, ARIZONA 85285-7648

VENDERS PH#: 1-800-528-7405
VENDERS POC: N/A

VENDERS PART#: N05-938 SIZES 8 at 2X 8 at XL 8 at L 8 at M
VENDERS CATALOG#: MAY-AUGUST CAT. 2000
VENDERS PAGE#: 31

REQUISITIONER: GORDON GRIFFIN
DATE: 26 JULY 00

P59

BR000405-011

Pavliscsak, James V.

rom: Pavliscsak, James V.
nt: Tuesday, 21 March, 2000 3:58 PM
Reed, Brenda L.
oject: FW: PR safety glasses - RUSEK

ok for purchase

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:19 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - RUSEK

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:31 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - RUSEK

laine,
equest approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:20 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - RUSEK

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:07 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - RUSEK

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

Request approval for IMPAC purchase and APC for:

END ITEM APPLICATION: BLDG# 14600 Operations

P 60

ITEM DESCRIPTION: safety glasses for Richard Rusek

QUANTITY: 1 ea.
ST PER ITEM: $ 227.50
AL COST: $ 227.50

VENDERS NAME:UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavliscsak /791-6423
DATE: 21MAR00

P61

BR000405-012

Pavliscsak, James V.

om: Pavliscsak, James V.
t: Tuesday, 21 March, 2000 3:58 PM
Reed, Brenda L.
ubject: FW: PR safety glasses - POSTON

ok for purchase

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:19 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - POSTON

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:34 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - POSTON

Elaine,
Requet approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

---
n: Oglesby, Curtis D.
ent: Tuesday, March 21, 2000 11:23 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - POSTON

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:03 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - POSTON

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

SUBJECT: IMPAC PURCHASE

1. Request approval for IMPAC purchase and APC for:

) ITEM APPLICATION: BLDG# 14600 Operations

ITEM DESCRIPTION: safety glasses for Charles Poston

P 62

QUANTITY: 1 ea.
COST PER ITEM: $ 229.00
TOTAL COST: $ 229.00

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavliscsak /791-6423
DATE: 21MAR00

R63
BR000405-00

Pavliscsak, James V.

m: Pavliscsak, James V.
t: Tuesday, 21 March, 2000 3:57 PM
Reed, Brenda L.
ubject: FW: PR safety glasses - SKVARCA

ok for purchase

-----Original Message-----
From: Newman, Doris E.
Sent: Tuesday, 21 March, 2000 3:20 PM
To: Pavliscsak, James V.
Subject: FW: PR safety glasses - SKVARCA

Funding is available

Elaine Newman
ATZH-RMB-B
Fort Gordon, Ga 30905

From: Jones, Hugh S.
Sent: Tuesday, March 21, 2000 2:31 PM
To: Newman, Doris E.
Subject: FW: PR safety glasses - SKVARCA

ne,
quest approved. Please validate funding and forward response to Jim Pavliscsak. JJVA

From: Oglesby, Curtis D.
Sent: Tuesday, March 21, 2000 11:21 AM
To: Jones, Hugh S.
Cc: Pavliscsak, James V.
Subject: FW: PR safety glasses - SKVARCA

FYA

Curtis D. Oglesby, P.E. Phone: 706 791-4243
Chief, Facilities Engineering FAX: 706 791-4222
Public Works Division, DPW DSN: 780-4243
Fort Gordon, GA 30905-5040 Pager: 803 202-5326

From: Pavliscsak, James V.
Sent: Tuesday, March 21, 2000 10:06 AM
To: Oglesby, Curtis D.
Subject: PR safety glasses - SKVARCA

FYC
MEMORANDUM THRU James Pavliscsak
MEMORANDUM THRU Curtis D. Oglesby
MEMORANDUM THRU Stacy Jones
MEMORANDUM FOR : BASOPS BUDGET, ATTN: Elaine Newman

JECT: IMPAC PURCHASE

. Request approval for IMPAC purchase and APC for:

END ITEM APPLICATION: BLDG# 14600 Operations

P64

ITEM DESCRIPTION: safety glasses for Neal Skvarca

QUANTITY: 1 ea.
COST PER ITEM: $ 229.00
TOTAL COST: $ 229.00

VENDERS NAME: UNICOR, FEDERAL PRISON INDUSTRIES, INC.
Federal Correctional Institution
Box 767
Butner, NC. 27509-0767
VENDERS PART NUMBER:
VENDERS CATALOG:
VENDERS PAGE:

VENDERS PHONE: Ph.# 919-575-2050
Fax.# 919-575-6280

VENDERS POC: Beverly

REQUISITIONER: Pavliscsak /791-6423
DATE: 21MAR00

P65

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Friday, April 07, 2000 6:19 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Reschedule eye exams

All purchase request for safety glasses are canceled. Reschedule your eye exam and be sure your prescription meets the POLICY FOR SAFETY EYEGLASSES I sent you. Schedule your exam for hours when you are working.

P 66

Reed, Brenda L.

From: Hill, Olaree D.
Sent: Monday, January 03, 2000 8:08 AM
To: Reed, Brenda L.
Cc: Ray, Bobby D.
Subject: RE: safety shoes

Price is at the discretion of the money folks/availability of funds and etc.
I would get JCI Safety(Mc Murdy) to help. I am with you SAFETY is uppermost. Few bucks now or a LOT later.
Have a nice Y2000. Ree

From: Reed, Brenda L.
Sent: Sunday, January 02, 2000 5:06 PM
To: Hill, Olaree D.
Subject: safety shoes

Hi Ree,

It is the problem child again. One more question that you might know at the top of your head.

Yes we are still trying to get JVP to let us order these safety shoes. Last year I went to occupational health and safety and got a memo signed and we ordered Reuben's safety shoes. We are trying to order the same pair for him this year. They are on the GSA contract. The problem is James has decided that they are too expensive. Is there a specified price? We do require all the safety we can get because of high voltage and oil leaking so bad at the power plant. The biggest problem is we have stirred things up (the whole group) so Reuben and I are being punished. If you could tell me anything or point me in the right direction I would be eternally grateful.

Thanks
Brenda

SOP

Fullbright, Reuben R.
From: Fobish, John F. CW2
Sent: Monday, December 04, 2000 10:39 AM
To: Fullbright, Reuben R.
Subject: RE: SOP

Reuben,

Thanks for your input. That is excellent information and exactly what is need in order to assist you guy's out during LOTO instances. I really appreciate your remarks. Hopefully I will get some of the same detailed remarks from the others. This is what we need in order to meet everyone's needs! I will be getting with you later for your help on further constructing the SOP. Thanks again Reuben...I truly appreciate it. Have a Great Day!

"ESSAYONS"
CW2 FOBISH
Directorate of Public Works
Facilities Engineering
Comm. (706) 791-6089
DSN: 780-6089
FAX: Comm. (706) 791-4222
DSN: 780-4222

.....

From: Fullbright, Reuben R.
Sent: Saturday, December 02, 2000 10:15 PM
To: Fobish, John F. CW2
Cc: Fullbright, Reuben R.; 'brenreed@knology.net'
Subject: SOP

Chief,
After taking a quick look at the LOTO SOP which was written for review and remarks I see a few problems.
1. OSHA representatives asked for Site Specific- Equipment Specific LOTO Procedures to be attached to each piece of equipment that needed to be serviced.
2. The SOP written was for the Power Plant site only and was not broken down each piece of equipment.
3. The SOP as written is more like a training handbook than an actual procedure. (see Examples)

EX 1. LOTO for Soak Back (Pre-lube Pump) Power plant 1 Unit 1
1. Inside control van for power plant 1 Close DC knife switch.
2. Go to enunciator panel turn knob to indicate alarms on unit #1 push reset.
3. Send unit a manual stop, verify by lit manual stop light
4. OFF-RUN switch to OFF Apply tag, on OFF-RUN switch, indicating you are changing or working on pump.
5. In relay room turn off Immersion Heater breaker (located on right hand panel as you enter) and apply tag out.
NOTE: Removing immersion heater fuses from panel only kills power to heater alone, breaker shuts down both heater and pump.
6. Open DC knife switch.
7. Remove starter fuse for unit #1.
8. Apply tag to door handle to fuse panel.
9. In unit #1 verify Immersion Heater switch to be in OFF and apply tag.

10. Input all tagging and information into LOTO Clearance book.
11. Proceed with repairs.
12. When repairs are complete.
13. Clear area of all tools and replace all guards.
14. Inform all affected workers of intent to reactivate equipment. NOTE: If anyone else has started any other repairs since you started there should also be their tags on equipment make sure to get clearance from them!
15. In relay room turn immersion heater breaker to ON.
16. In unit #1 turn immersion heater switch back to ON.
17. Verify proper operation of soak-back pump and no leaks. If all is OK proceed to
18. Replace starter fuse for unit #1.
19. Remove all tags and file/document in the LOTO Clearance book.
20. Document all repairs in the maintenance log, manual for unit #1 and the manual for power plant #1.

EX 2 LOTO for Chill Water Pump at building 14600

1. Open Chill water pump breaker located at Motor Control Center (MCC) Tag.
2. Pull Disconnect located on wall behind hot water heater and lock out.
3. If work is also required on starter, shut down control circuit by opening breaker (x?) located in panel (x?) and tag.
4. Close valves 552 and 553. Tag.
5. Enter information in clearance book.
6. Drain water from pump.
7. Make repairs or replacement as necessary.
8. When repairs are complete.
9. Clear area of all tools and replace all guards.
10. Inform all affected workers of intent to reactivate equipment. NOTE: If anyone else has started any other repairs since you started there should also be their tags on equipment, make sure to get clearance from them!
11. Open valves 552 and 553
12. Close chill water pump breaker located at Motor Control Center (MCC) and remove Tag.
13. Remove Lock Out from Disconnect located on wall behind hot water heater and close.
14. If work was also required on starter, remove tag. close control circuit by closing breaker (x?) located in panel (x?)
15. Verify proper operation of chill water pump and no leaks. If all is OK proceed to
16. Remove all tags and file/document in the LOTO Clearance book.
17. Recheck all tags are removed and file/document in the LOTO Clearance book.

Sop 3

What games had before OSHA arrived.

Take Seven Steps for Lockout/Tagout

- *Think, plan and check.* If you are in charge, think through the entire procedure. Identify all parts of any systems that need to be shut down. Determine what switches, equipment and people will be involved. Carefully plan how restarting will take place.

- *Communicate.* Notify all those who need to know that a lockout/tagout procedure is taking place.

- *Identify all appropriate power sources,* whether near or far from the job site. Include electrical circuits, hydraulic and pneumatic systems, spring energy and gravity systems.

- *Neutralize all appropriate power at the source.* Disconnect electricity. Block movable parts. Release or block spring energy. Drain or bleed hydraulic and pneumatic lines. Lower suspended parts to rest positions.

- *Lock out all power sources.* Use a lock designed only for this purpose. Each worker should have a personal lock.

- *Tag out all power sources and machines.* Tag machine controls, pressure lines, starter switches and suspended parts. Tags should include your name, department, how to reach you, the date and time of tagging and the reason for the lockout.

- *Do a complete test.* Double check all the steps above. Do a personal check. Push start buttons, test circuits and operate valves to test the system.

When Its Time To Restart

After the job is completed, follow the safety procedures you have set up for restart, removing only your own locks and tags. With all workers safe and equipment ready, it's time to turn on the power.

Turned down by OSHA

Sop 4

Lockout/Tagout Guidelines

a. The purpose of locking and tagging is to ensure the safety of employees working on power-driven equipment by preventing it from being energized during maintenance. This includes electric, steam, pneumatic, hydraulic, or gas-powered equipment and electrical circuits. Whenever power-driven equipment or an electrical circuit is being worked on, it must be locked out and tagged IAW 29 CFR 1910.147.

b. Requirements.

(1) Leaders/supervisors/commanders will ensure that subordinates lockout and tag the main source of power before any maintenance, inspection, cleaning, or contact with machinery, equipment or systems that have potential to cause injury or death.

(2) The lockout will be by padlocks, blank flanges, padlock with chains, or similar device that physically prevents reactivation of a main power source.

(3) Individuals required to use locks and tags will be issued a personal lock and key. To eliminate the chance of unauthorized lock removal, duplicate keys will not be provided.

(4) The lockout device will be accompanied by a "Danger" tag that has the installer's full name, shop, telephone number, and date of installation.

(5) In any instance where physical lockout of the main power source is not possible, an attendant must be placed at the control device during work efforts.

(6) Individuals going off-shift will remove their locks and tags. If work is still required, individuals relieving will apply their locks and tags in place of the departing individual's locks and tags.

add:
1. log in book

Sop 5 9/15/00

Not approved. then sent to Union unchanged - now under negotiation

BATTERY POLICY

1. **PURPOSE**: To establish safe procedures and assign responsibilities for replenishing water and checking condition of lead-acid batteries.

2. **APPLICABILITY**: This procedure applies to servicing of lead-acid storage batteries at the Utility Monitoring and Control Systems (UMCS) generator site and associated work operations of the UMCS.

3. **RESPONSIBILITY**:
a. The UMCS supervisor is responsible for application and enforcement of this procedure.
b. UMCS generator operator personnel shall accomplish all tasks listed.

4. **PERSONNEL PROTECTIVE CLOTHING AND EQUIPMENT** (PPE):
a. Safety shoes
b. Goggles
c. Rubber or neoprene gloves
d. Acid apron
e. Face shield

OSHA stated sit down with Employees + write a policy

5. **FIRST AID AND FIRE FIGHTING EQUIPMENT**:
a. Fire extinguisher (verify presence and charge)
b. Spray type eye wash fountain (Confirm operation and flush for one minute)

6. **EMERGENCY PHONE NUMBER**: 911

7. **PROCEDURE**:

a. WEEKLY: UMCS generator operator personnel shall add water as needed. Accomplish task before 1100 hours on Friday of each week.

1) Verify DC knife switch is open
2) Remove fuses for battery charger
3) Remove battery caps and place on the top of the battery
4) Add distilled water as needed
5) Replace battery caps
6) Replace battery charger fuses
7) Rinse, dry, and store PPE.

b. QUARTERLY: UMCS generator operator personnel shall accomplish task before 1100 hours on the first Tuesday of the month of January, April, July, and October for control van1, February, May, August, and November for control van2, March, June, September, and December for control van3.

1) Verify DC knife switch is open
2) Remove fuses for battery charger
3) Remove battery caps and place on the top of the battery
4) Measure and record specific gravity of each cell
5) Replace battery caps
6) Replace battery charger fuses
7) Rinse, dry, and store PPE.

8. **DOCUMENTATION**:
a. REPLENISHING WATER: Record task and amount of water used in generator log. Send an email message to the UMCS supervisor with recorded information.
b. SPECIFIC GRAVITY: Transfer recorded data to electronic file (EMD BATTERY LOG). File a printed copy at the generator site. Send a copy as an email attachment to the UMCS supervisor.

How Hoyd G from OSHA wants SOP written

Brenda Reed

From: "Fullbright, Reuben R." <fullbrir@gordon.army.mil>
To: "Fobish, John F. CW2" <fobishj@gordon.army.mil>
Cc: "Fullbright, Reuben R." <fullbrir@gordon.army.mil>; <brenreed@knology.net>
Sent: Saturday, December 02, 2000 10:15 PM
Subject: SOP

Chief,
After taking a quick look at the LOTO SOP which was written for review and remarks I see a few problems.
1. OSHA representatives asked for Site Specific- Equipment Specific LOTO Procedures to be attached to each piece of equipment that needed to be serviced.
2. The SOP written was for the Power Plant site only and was not broken down each piece of equipment.
3. The SOP as written is more like a training handbook than an actual procedure. (see Examples)

EX 1. LOTO for Soak Back (Pre-lube Pump) Power plant 1 Unit 1
1. Inside control van for power plant 1 Close DC knife switch.
2. Go to enunciator panel turn knob to indicate alarms on unit #1 push reset.
3. Send unit a manual stop, verify by lit manual stop light
4. OFF-RUN switch to OFF Apply tag, on OFF-RUN switch, indicating you are changing
or working on pump.
5. In relay room turn off Immersion Heater breaker (located on right hand panel as you
enter) and apply tag out.
NOTE: Removing immersion heater fuses from panel only kills power to heater alone,
breaker shuts down both heater and pump.
6. Open DC knife switch.
7. Remove starter fuse for unit #1.
8. Apply tag to door handle to fuse panel.
9. In unit #1 verify Immersion Heater switch to be in OFF and apply tag.
10. Input all tagging and information into LOTO Clearance book.
11. Proceed with repairs.
12. When repairs are complete.
13. Clear area of all tools and replace all guards.
14. Inform all affected workers of intent to reactivate equipment.
NOTE: If anyone else has
started any other repairs since you started there should also be their tags on equipment
make sure to get clearance from them!
15. In relay room turn immersion heater breaker to ON.
16. In unit #1 turn immersion heater switch back to ON.
17. Verify proper operation of soak-back pump and no leaks. If all is OK proceed to
18. Replace starter fuse for unit #1.
19. Remove all tags and file/document in the LOTO Clearance book.
20. Document all repairs in the maintenance log, manual for unit #1 and the manual for
power plant #1.

EX 2 LOTO for Chill Water Pump at building 14600

1. Open Chill water pump breaker located at Motor Control Center (MCC) Tag.
2. Pull Disconnect located on wall behind hot water heater and lock out.
3. If work is also required on starter, shut down control circuit by opening breaker (x?)
located in panel (x?) and tag.

4. Close valves 552 and 553. Tag.
5. Enter information in clearance book.
6. Drain water from pump.
7. Make repairs or replacement as necessary.
8. When repairs are complete.
9. Clear area of all tools and replace all guards.
10. Inform all affected workers of intent to reactivate equipment.

NOTE: If anyone else has started any other repairs since you started there should also be their tags on equipment, make sure to get clearance from them!

11. Open valves 552 and 553
12. Close chill water pump breaker located at Motor Control Center (MCC) and remove Tag.
13. Remove Lock Out from Disconnect located on wall behind hot water heater and close.
14. If work was also required on starter, remove tag. close control circuit by closing breaker (x?) located in panel (x?)
15. Verify proper operation of chill water pump and no leaks. If all is OK proceed to
16. Remove all tags and file/document in the LOTO Clearance book.
17. Recheck all tags are removed and file/document in the LOTO Clearance book.

18. **APPLYING AND REMOVING LOCKOUT AND TAGOUT DEVICES**

a. The authorized employee/operator shall ensure that all energy isolating devices needed to control energy to, or within, the system are identified and that system is properly shut down, isolated, blocked, and secured in accordance with the hazardous energy control procedure. The authorized employee/operator will also ensure that affected employees are notified that the equipment is about to be shutdown and locked or tagged out.

b. Any system operated by a remotely controlled source will be completely isolated such that it cannot be operated by that or any other source.

c. The authorized employee/operator shall affix lockout and/or tagout devices to each energy-isolating device in accordance with the hazardous energy control procedure.

(1) Lockout devices shall be affixed to each energy isolating device in a manner that will maintain the energy isolating device in the safe position.

d. Tagout devices shall be affixed in such a manner as will clearly indicate that the operation of movement of energy isolating devices from the safe position is prohibited.

e. In areas not under strict control of personnel involved with the hazardous energy control activities, and in areas with public access, padlocks or other positive controls must be installed on the isolation devices along with the appropriate tags.

f. In areas under strict control of personnel involved with hazardous energy control activities, and in areas that prohibit public access, padlocks or other positive controls are not required. In such cases tagouts may be used as a precaution to the operator. (See para.4.a, b).

g. At the generator site, locked gates prohibit access to the public. If inside a unit or control van, place a tag outside to identify to others that work is being conducted and area is considered hazardous. Communication is to be performed to all affected personnel and staff prior to commencement of work.

h. Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, discharged, or otherwise rendered safe.

(1) Protective grounds shall be identified with safe clearance/Danger Red Tag.

(2) The authorized employee/operator is responsible for ensuring the control of residual energy and for placing and tagging and requirements specified in the hazardous energy control procedures.

i. When there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the energy control procedure is complete, and hazard ceases to exist.

j. Before starting work on systems which have been locked out or tagged out, the authorized employee/operator shall verify that isolation and deenergization of the system have successfully been accomplished.

k. When tagout devices are used, employees/operators shall be instructed in the following requirements and limitations of tags.

(1) Tags must be updated, legible and understood by all authorized and affected employees and incidental personnel.

(2) Tags and their means of attachment must be made of materials which will withstand the environments encountered in the workplace.

(3) Tags shall be securely attached to energy isolating devices so that they cannot become inadvertently or accidentally detached during use.

(4) Tags shall not be removed without authorization of the authorized employee/operator and shall never be bypassed, ignored, or otherwise defeated.

(5) Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical protection that is provided by a lock; tags may evoke a false sense of security.

l. Before lockout or tagout devices are removed and energy restored to the system, the authorized employee/operator shall ensure that the following actions have been taken:

(1) The work area has been inspected and all nonessential items (e.g., tools and materials) have been removed from the system, the system components are operationally intact, and all employees have been safely positioned or removed from the area and;

(2) All affected employees have been notified that the lockout or tagout devices are about to be removed.

m. With the exception of the following conditions, each lockout and/or tagout device shall be removed from each energy-isolating device by the authorized employee/operator who applied the device. When this employee is not available, the device(s) may be removed by another individual appointed by, and under the direction of, the UMCS Manager provided that the following procedures are complied with:

(1) The UMCS Manager ensures that the individual appointed to remove lockout and/or tagout devices is knowledgeable of the scope and procedures of the safe clearance, work already performed, and work to be performed.

(2) This individual and the requirements for transferring removal authority to him/her from the authorized individual/UMCS Manager is listed in this SOP. **(Paragraph 15 and Appendix C.)**

(3) Verification by the UMCS Manager that the authorized employee/operator who applied the device is not at the facility;

(4) The UMCS Manager makes all reasonable efforts to contact the first authorized employee/operator to inform him/her that his/her lockout and/or tagout devices are to be removed;

(5) The UMCS Manager transfers the clearance and release responsibility to the designated individual.

(6) The designated individual removes the lockout/tagout devices.

(7) The first authorized employee/operator is informed that his/her lockout and/or tagout devices have been removed before he/she resumes work at the facility.

19. **GROUP LOCKOUT AND TAGOUT**

a. When servicing or maintenance is performed by a crew, (two or more operators), or other group of personnel, they shall utilize a procedure which affords them a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout and tagout shall be conducted in accordance with the procedures required by paragraph 3b; 20 and 21, and include the following requirements:

b. Each person working under the group safe clearance shall sign the master tag or work permit verifying he/she fully comprehends the details of the job, the energy isolation devices actuated, and the lockout or tagout devices installed.

c. Primary responsibility for a set number of personnel working under the protection of a group lockout or tagout device, and for the device itself, shall be vested in a principal authorized individual. The principal authorized individual shall ascertain the exposure status of individual group members with regard to the lockout or tagout of the system. Exposure status of each group member shall be monitored by having each person sign in, recording date, time, and initials on a master tag or work permit at the start of a job, and sign out when leaving the job. Changes to any energy isolating device, including temporary removal of a lock or tag, shall not be permitted until each individual group member has been notified and is clear of any possible danger resulting from the change.

d. Each principal authorized individual shall affix a lock on each lockable energy isolation device. Each principal authorized individual shall place the key or keys into a group lockbox, or comparable apparatus, secure the lockbox with a personal lock prior to beginning work and remove these devices promptly upon completion of his/her portion of the work. Energy isolation devices that are not capable of being locked shall have a tag placed on the device identifying each principal authorized individual.

e. As an alternative to the group lockout and tagout method described above, each individual working on the equipment shall place a personal lock on a group lockbox and a personal tag on each energy isolation device required to provide protection during the specific work being performed.

20. **LOCKOUT**
The following are LockOut/TagOut procedures particular to the Fort Gordon Generator Site. All clearances must be issued prior to locking/tagging and commencement of work.

NOTE: Shutdown equipment using procedures established by the equipment manufacturer. An orderly shutdown must be utilized to avoid any additional or increased hazard to employee/operator.

(a). When work is to be performed on a unit, i.e. repair or change a pump, switch, gauge or filter, the "Shore Power" switch will be moved to the "open" or "off" position.

(b). The operator performing the work will then apply both a Lock and Red Tag with appropriate information as outlined in this SOP, on the isolating device ensuring it is locked out in the "open" or "off" position.

(c). The operator will then remove the battery cables from the batteries to prevent any accidental energization of equipment. Operator will ensure that the (NEG) - cable is removed first, then the (POS) + cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed ONLY when removing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(d). Operator will then verify that the gates to the generator site are locked using lock **AAA6** and display appropriate tags (Red Tag) to identify to others that work is being conducted and area is considered hazardous.

(e). Operator will then ensure that all fuel hand valves to unit are placed in the "closed" position.

(f). Operator will then verify that the equipment is locked out by testing the equipment's operating controls. **RETURN ALL CONTROLS TO THE "OFF" POSITION AFTER TESTING!**

(g). Operator will then notify the UMCS Manager of commencement of work as indicated in para.13, b, and then perform required work.

(h). Upon completion of work, operator must adhere to the following **LOCK REMOVAL** procedures.

NOTE: Operator will check the equipment to ensure it is operationally intact, tools have been removed, and all necessary guards and safety devices have been replaced.

(1). Operator will ensure all affected employees are safely positioned.

(2). The operator will then replace the battery cables on the battery terminals. Operator will ensure that the (POS) + cable is replaced first, then the (NEG) - cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed ONLY when replacing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(3). Operator will then ensure that all fuel hand valves to unit are placed in the "open" position.

(4). Operator will notify affected employees that lock and tags are about to be removed and the equipment is ready for operation.

(5). The operator performing the work will then remove both the Lock and Red Tag from the "Shore Power" isolating device and place it in the "closed" or "on" position.

(6). Operator will then operate unit and perform function tests.

(7). Operator will then remove locks and tags from gates to the generator site to identify to others that work is completed and area is cleared from hazards.

(8). Operator will then notify the UMCS Manager of completion of work as indicated in para.13, b.

21. **TAGOUT**

TagOut procedures will be used in lieu of LockOut when work is to be conducted inside the Relay Room of the Control Van. This is due to the fact that the devices in the relay room are not designed to accommodate locks. Tags will be applied to switches and breaker handles to "warn/inform" personnel of work being conducted. The van will be "tagged" on the exterior door handle. This will require anyone entering the van to knock first, thus providing the operator with an audible warning that someone is about to enter the work area. Locks will be applied to those areas designed to receive such devices. The procedures are as follows:

NOTE: Shutdown equipment using procedures established for equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard to employee/operator.

a. **SHORE POWER**

(1). The operator will ensure that the "Shore Power" switch is moved to the "open" or "off" position.

(2). The operator will then apply both a Lock and Red Tag with appropriate information as outlined in this SOP, on the isolating device ensuring it is locked out in the "open" or "off" position.

b. **LOAD TIEBREAKER**

(1). The operator will then "rack out" the Load TieBreaker connected to the control van, placing it in the complete "disconnect" position.

(2). The operator will then apply both a Lock and Red Tag to the breaker cabinet door with appropriate information as outlined in this SOP, ensuring the isolating device is locked out in the "open" or "off" position.

(3). The operators will then TagOut the "DC knife switch" located in the van with a "Red Tag" to the generator start circuit to prevent the use of the switch and to remind himself/herself of that potential hazard.

(4). The operator will then remove the battery cables from the batteries to prevent any accidental energization of relays or equipment. Operator will ensure that the (NEG) - cable is removed first, then the (POS) + cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed <u>ONLY</u> when removing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(5). Operator will then verify that the gates to the generator site are locked and display appropriate tags (Red Tag) and information to identify to others that work is being conducted and area is considered hazardous.

(6). Operator will then verify that the equipment is locked out, where applicable by testing the equipment operating controls. **RETURN ALL CONTROLS TO THE "OFF" POSITION AFTER TESTING!**

(7). Operator will then notify the UMCS Manager of commencement of work as indicated in para.13, b.

(8). Upon completion of work, operator will adhere to the following **TAG REMOVAL** procedures:

NOTE: Operator will check the equipment to ensure it is operationally intact, tools have been removed, and all necessary guards and safety devices have been replaced.

(a). Operator will ensure all affected employees are safely positioned.

(b). The operator will then replace the battery cables on the battery terminals. Operator will ensure that the (POS) + cable is replaced first, then the (NEG) - cable. This procedure will provide greater protection of personnel from accidental energization or shock. **(This work is performed ONLY when replacing components, which operate on the Direct Current circuit and cannot be isolated by the Knife Switch!)**

(c). Operator will notify affected employees that lock and tags are about to be removed and the equipment is ready for operation.

(d). The operator will then remove both the Locks and Tags from the Load TieBreaker connected to the control van, and return it back into the "connected" position.

(e). The operator performing the work will then remove both the Lock and Red Tag from the "Shore Power" isolating device and place it in the "closed" or "on" position.

(f). The operator will then remove the Red Tag from the "DC knife switch" to the generator start circuit to place it back in an operable state.

(g). Operator will then operate unit and perform functions tests.

(h). Operator will then remove locks and tags from gates to the generator site to identify to others that work is completed and area is cleared from hazards.

(i). Operator will then notify the UMCS Manager of completion of work as indicated in para.13, b.

22. **TRAINING**

a. Training shall be provided to ensure that the purpose and procedures of the energy control program are understood by all personnel and that personnel possess the knowledge and skills required for the safe application, usage, and removal of energy controls. All employees involved with hazardous energy control procedures shall have initial training and must demonstrate adequate working knowledge of hazardous energy control policy and local programs and procedures prior to placement on the list of issuing and authorized individuals. All training shall be documented with the documentation maintained at the site for at least three years.

(1) Each authorized individual and issuing official shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods and means for energy isolation and control.

(2) Each affected person shall be instructed in the purpose and use of the energy control procedures.

(3) All incidental personnel shall be instructed about the procedures and about prohibitions relating to restarting or re-energizing systems which are locked or tagged out.

b. When tagout systems are used, personnel shall also be trained in the limitations of tags (see paragraph 18k)).

c. All personnel shall be retrained in hazardous energy control procedures. Retraining shall be provided -

(1) for all authorized and affected individuals and issuing officials whenever there is a change in their job assignments, a change in systems or processes that present a new energy control hazard, or a change in energy control procedures;

(2) whenever a periodic inspection reveals, or there is reason to suspect the presence of, deviations from or inadequacies in the person's knowledge or use of energy control procedures; and

(3) at least annually.

d. The responsible official shall certify and document all training and retraining. Certification shall contain such information as the name of the person, the time, date, and location of training, the name of the trainer, etc.

23. **INSPECTIONS AND REVIEW**

Periodic, unscheduled (at least annual) inspections shall be conducted to ensure that all requirements of the hazardous energy control procedures are being followed. The responsible official shall certify that the periodic inspections have been performed: the certification shall specify the system on which the energy control procedures were utilized when inspected, the date of the inspections, the names of personnel performing and included in the inspections.

a. Periodic inspections of hazardous energy control procedures shall be conducted by authorized individuals other than those utilizing the specific energy control procedure being inspected.

b. Periodic inspections of hazardous energy control procedures shall include a review between the inspector and each individual involved in the safe clearance being inspected to assess that person's knowledge of, and responsibilities under, the hazardous energy control program and procedures. This review shall include the limitations of tagout devices (see paragraph 18K).

c. Any deficiencies shall be documented and appropriate measures implemented to correct the deficiencies and to ensure future compliance.

d. Documentation (signed by the inspectors) of the inspections shall be maintained at the facility. These inspections shall strive for consistency in format and content between facilities and shall help assure that the policies and procedures meet all requirements.

e. Annual review of hazardous energy control programs shall be conducted by the installation safety and occupational health office in conjunction with the responsible functional element (e.g., Utility Monitor and Controls System Manager; Appointed Individual).

P 16

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON
U.S. ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5000

REPLY TO
ATTENTION OF:

ATZH-DIC

11 September 2000

MEMORANDUM FOR Ms. Brenda Reed, Directorate of Public Works, Fort Gordon, GA 30905

SUBJECT: Memorandum of Official Reprimand

1. The purpose of this memorandum is to officially reprimand you for failure to follow instructions. Specifically,

a. On 10 August 2000, at approximately 1100, you were told to turn over to me three of the four keys you had in your possession when you were issued four locks keyed alike to be used for lockout/tagout procedures. I explained that guidelines allowed only one key for the employee in order to comply with standards and policy. You stated, "you can have them all." You then went to your locker and retrieved the issued locks, hasps, and tags and laid them on my desk. I again instructed you to just give me three of the keys. You said, "no" and walked out of my office leaving the Lockout/Tagout items on my desk.

b. On 15 August 2000, at approximately 1230, you were called into the office of Mr. Curtis Oglesby, Chief, Facility Management Branch. I explained to you in the presence of Mr. Oglesby that we had spoken with the post Safety Office. I informed you that they had reviewed our Lockout/Tagout procedure and found it adequate and the employee was only to have one key. You were instructed to take back the Lockout/Tagout items and leave three of the keys with me. You stated that you only had my word that post safety reviewed the procedure and that I was wrong. I again asked you to take the locks and keep only one key. You refused and were dismissed.

2. This formal reprimand is intended to impress upon you the seriousness of your actions and is considered reasonable and fully warranted. It is also considered to be a corrective measure and necessary to promote the efficiency of the Federal Service. Employees have an obligation to comply with work instructions given by their supervisors. If you disagree with those instructions you are obliged to "Obey now, grieve later."

3. In determining the penalty for this offense, I have compared it to similar offenses as defined in AR 690-700, Chapter 751, Table 1-1, Table of Penalties for Various Offenses. The penalty for a first offense ranges from a written reprimand to removal. I have decided that a written reprimand is the appropriate penalty to impose and will preclude the need for further disciplinary actions. You should be aware, however, that future conduct offenses, particularly those that may occur while this reprimand is active, may result in more severe disciplinary action up to and including your removal from the Federal Service.

See meetings behind this reprimand

ENCLOSURE TEN

ATZH-DIC
SUBJECT: Memorandum of Official Reprimand

4. This reprimand is effective upon receipt of this memorandum and will be made of matter of record and placed on the left side of your Official Personnel Folder (OPF) for a period of two years. It will be withdrawn at the end of that time; however, the reprimand will be withdrawn earlier if it is determined through an appropriate adjudicatory procedure or an appropriate management official that the reprimand is unwarranted or upon your separation from the Department of the Army, whichever occurs first.

5. You have the right to submit a grievance regarding this decision no more than 15 workdays after the date you receive this letter. This grievance must be submitted to me in writing and in accordance with the requirements of Article 35, Section 10, Step 2 and Section 8 of the Labor Management Agreement. If you elect to submit a grievance, I will arrange for the Step 2 meeting.

6. You will be allowed the use of a reasonable amount of official time, subject to supervisory approval, to obtain advice on rights and privileges from official sources and to present your grievance, if you choose to file one. You should arrange, in advance, with me, the use of any official time.

7. Copies of applicable regulations as well as the materials relied on in issuing this reprimand are available to you and/or your representative for review through the Civilian Personnel Advisory Center. If you require assistance or additional information concerning your procedural rights, you may consult with Mr. Steven F. Rayle, Civilian Personnel Advisory Center, 791-8997.

8. If you feel that this matter constitutes employment discrimination on the basis of race, color, religion, sex, age, national origin, or handicap (mental or physical), you may contact the Equal Employment Office (EEO) at 791-4551.

9. If you believe your unacceptable conduct may be caused by personal, physical, medical problems, substance abuse, and/or other reasons not directly related to the duties of your position, you are advised and strongly encouraged to use the services of the Employee Assistance Program at Fort Gordon. This program is designed to assist employees with problems and refer them to sources within the community that offer treatment or rehabilitative care. For additional information regarding this service, contact the Program Coordinator, Mr. Keith Clum, at 791-3437.

James Pavliscsak
Chief, Engineering Management Section

P 18

August 09,2000
Approximately 1115 HRS.

Mr. Pavliscsak called me into the hall and told me to give him the 3 keys to my lockout set. I explained to him that the OSHA regulation says only the person the lock belongs to has a key. I told him if he insisted on taking my keys then I would give him the entire set. I gave him the entire set back and he proceeded to Mr. Oglesby's office.

1230 HRS

Mr. Oglesby called the control room and told me to come to his office. I did not request for Union representation because I did not know why he wanted to see me. When I got there he asked me what was the problem with me not wanting to give Mr. Pavliscsak three of the keys to my safety lock out set. I told him that the OSHA regulation stated one lock, one key, one person" it was a safety issue to make sure no one had a key to your safety lock out. We did not have an approved policy that had been through the Local Union and Post Safety Office. He stated that we did not have to take anything through the Local Union, but he would contact Post Safety again, but he had been told that it was ok for the supervisor to have keys to the safety lockouts. He told me to take my safety lock out set back and give Mr. Pavliscsak the three keys. I said no sir; I can not go against an OSHA regulation. That Post Safety needed to send me something in writing where OSHA stated that it was all right for someone other than the employee to have a key to someone else's safety lock out set. Mr. Oglesby stated that I was being unreasonable that my supervisor was looking out for my safety. I realized at the end of this meeting that I should have requested a Union Representative.

Meeting 2

August 15, 2000
1640 hrs.

Mr. Pavliscsak asked me if I had a minute. He then said, "you need to go to Mr. Oglesby's office. I asked Mr. Pavliscsak why I was to go to Mr. Oglesby's office and I wanted some one from the Union present. His reply was you don't need a representative. Go to Mr. Oglesby's office. Mr. Pavliscsak went before me and was behind closed doors when I reached Mr. Oglesby's office.

Mr. Pavliscsak opened Mr. Oglesby office door and told me to come in and sit down. Mr.Pavliscsak, however did not sit down, he stood about two feet in front of me, while Mr. Oglesby came around his desk, raised his wheel chair to its highest level and sat about four feet behind Mr. Pavliscsak.

Mr. Pavliscsak did most of the talking. The only thing that Mr. Oglesby said in this meeting was "I talked with safety and your supervisor can hold the keys".

Mr. Pavliscsak told me to take my lock set back and to give him the spare keys. I said no sir; it is against the OSHA regulations. We did not have a policy in place that had been approved through the Local Union. The Post Safety Policy stated no spare keys. Mr.Oglesby informed me that nothing had to go through the Union or anywhere else. Post Safety was there for guidance and nothing more.

After the third time of being told I would take the lockout set back and gives the spare keys to Mr. Pavliscsak. Three separate times I explained that this was a life safety regulation and I could not go against it. I apologized and said I would not purposely go against any OSHA Regulation and I left the room.

I did not appreciate being sat in a narrow chair next to a large desk with a 6'3" work leader towering over me, and his supervisor directly behind him. I am asked a question and when I give an answer I am given a sarcastic remark. I feel that since I am the only female in this section, management is trying to intimidate me. None of the other operators have been accused of being an unreasonable conspirator.

As soon as I came back into the control room, the other operator and I had to go to the power plant. I was under such stress that I had difficulty getting the plant to come on line. No one should be placed under that type of stress, as you must be very alert as to what you are doing. Mistakes will get you or someone else killed.

Meeting 3

September 09,2000
Friday 1630-1715

Mr. Pavliscsak called me out to the hall in UMCS and asked me "if I had a few minutes". He then proceeded to tell me I had to go to Mr. Oglesby office. I told Mr. Pavliscsak that I needed a union representative, he said no I didn't and to go to Mr. Oglesby's office. Mr. Pavliscsak told me to sit down. At that point he sat in a chair across from me. Mr. Oglesby stated that I was going to get a letter of reprimand and a suspension, and that it was at "Legal" being looked at, he then asked if I was going to take the lock out set back and give Mr. Pavliscsak the three spare keys. I said no sir, it is against OSHA regulations, Post Safety's policy and in an email that Mr. Pavliscsak sent to the operators and I could not go against a life safety regulation.

Mr. Oglesby then informed me again that a letter of reprimand had been typed and it was over at "legal" and I would be suspended and if I still refused I would be dismissed from Federal Service. The charge would be insubordination and now would I take the locks back and give Mr. Pavliscsak the spare keys. I said no sir, I believe from the research that my coworkers and I had done (AR's, OSHA Regulations, Union Contract, Post Safety and email). That I truly believed that I would be putting my life or some one else's life in danger and I could not follow that order.

Mr. Oglesby stated that he contacted Mr. Blandin at the Post Safety office and he informed him that it was all right for the supervisor to have the spare keys. I told Mr. Oglesby and Mr. Pavliscsak that shortly after that conversation some one went to the Safety Office and showed Mr. Blandin the Post Safety regulations governing the use of lock out policy. It was not all right for the supervisor to take the keys from individuals that the locks were assigned to. The regulations are very explicit on who can maintain the key and there were no spare keys allowed.

I informed Mr. Oglesby and Mr. Pavliscsak that we did not have an approved policy in place that had been through the Local Union and Post Safety to include the signature blocks, of all that are required to sign the approval. **Mr. Oglesby raised his voice and stated that nothing had to go through the Local Union or anywhere else.** I said no sir you are wrong there are some things that do and it is listed in the labor contract.

Again with a raised voice he stated that I would receive a letter of reprimand and a suspension for insubordination and would be terminated from Federal Service. That I was to do as I was told and then grieve it later. I asked "if I was told to jump off a building, was I to do it and if I lived I could grieve it. He

then asked "don't you trust Mr. Pavliscsak" my reply was no and OSHA states 1 key, 1 lock, 1 person. Mr. Pavliscsak stated that he had looked up all the OSHA regulations and that was not one of them. I said it is also listed in the Grainger parts book in the lock out section. At this Mr. Oglesby said it did not matter what a parts book printed.

Mr. Pavliscsak told me to show him the regulations. Mr. Oglesby gave me the dictionary's definition of insubordination.

I asked why were there still two people that had not been told to turn in their spare keys? I also asked him why nothing was said to the operator that filed the teeth of his spare keys before he gave them to Mr. Pavliscsak. Mr. Pavliscsak said because I am too busy looking up regulations and talking to Safety. I made no comment.

When Mr. Oglesby said "take the locks back and to give the spare keys to Mr. Pavliscsak". Again I said no sir, I know you think that I am just trying to cause trouble but that is not the case, I can not go against an OSHA regulation especially when it is a life and death issue. Mr. Oglesby stated "don't blow smoke and we know exactly what you are doing. I then told Mr. Oglesby "do what you feel that you have to do, and I will do what I have to do".

Mr. Oglesby then stated "you are dismissed" and I got up and left his office.

MEETING 4

September 11, 2000
Monday 1700-1730

Mr. Pavliscsak came into the kitchen and told me to go to Mr. Oglesby office. I told Mr. Pavliscsak that I wanted a Union Representative there that this was nothing more than harassment. He said OK and left the room. In a short time he came back and again told me to go to Mr. Oglesby's office. Again I said I wanted a union representative there. He said, "no, just go to his office". I went to Mr. Oglesby's office.

Mr. Pavliscsak followed me into Mr. Oglesby's office; Mr. Pavliscsak picked up a typed piece of paper off of Mr. Oglesby's desk. Mr. Oglesby asked did I want a union representative there when he gave me my letter of reprimand? I said "yes". Mr. Pavliscsak laid the typed letter down.

They both began talking about taking the lock set back. Under great stress I took the set back and stated this was against OSHA safety regulations but I could not handle being harassed every day. They both stated it was up to me to find the regulation that stated One key, One lock, One person. I said I would. Mr. Oglesby said I told him Friday that I would get a copy of the regulations and give it to Mr. Pavliscsak. I told Mr. Oglesby it was his and Mr. Pavliscsak's job to keep me safe, why did I always have to look up the information and copy it for them. I had already sent him all the regulations once. I would get another copy by the time I came to work the next day.

1800 hrs.

Mr. Pavliscsak came into the control room and asked me if I "had a minute" he wanted to talk to me as a friend not as a supervisor. We went outside and he said "that I had been within two minutes of being sent home". "That if I was not happy working here, that Johnson Control was always looking for mechanics". He stated "that I was not happy working at the VA Hospital in Tampa". I told him; I wanted to move back to Augusta. I have always enjoyed working in UMCS until his job title changed and his attitude toward the personnel that worked for him became hostile.

DOCUMENTATION

12 Sep 00
1615 HRS.

Mr. Pavliscsak asked me where my Union Representative was. I told Mr. Pavliscsak that it was after normal duty hours and I the Union Office closed at 1600 hours.

I also told Mr. Pavliscsak that I had talked to a Union Representative at home the day before. Mr. Oglesby could give me my letter of reprimand as long as nothing was discussed.

Mr. Pavliscsak went to Mr. Oglesby's office and in a few minutes came back. Mr. Pavliscsak informed me that Mr. Oglesby said no, that he wanted a Union Representative present when he handed me my letter of reprimand.

MEETING 5

13 September 2000
1600-1635

Mr. Pavliscsak came out side at 1600hr and asked where my union representative was. I explained it was after normal duty hours and the union closes at 1600hrs. Just let Mr. Oglesby know to give me my letter of reprimand and nothing was to be discussed. Mr. Pavliscsak came and asked me to go to Mr. Oglesby's office and that I had caused him to miss his ride home. I reminded him that I had told him on the 12th they could just give me the letter, and I had consulted the union and knew what I needed to know. Mr. Pavliscsak stated no, that Mr. Oglesby wanted a Union representative there.

At 1625hrs, Mr. Pavliscsak came and got me and escorted me to Mr. Oglesby's office where I was told to sit down (not by choice) and was told to sign a statement that I received the formal letter of reprimand. Mr. Pavliscsak took the original and made copies. He gave me the original and I left Mr. Oglesby office.

COMMENTS:

Mr. Pavliscsak's job title is GROUP LEADER, not supervisor. If I had been called in to Mr. Oglesby's office 5 times over the same issue why is Mr. Pavliscsak's signature on this reprimand

I do not agree with this letter that is going into my permanent file as what I was saying no to. It could put me in a life or death situation. I would have no control over persons having access over my safety lockout.

1. OSHA regulation 110.147 CFR29 Standard interprets one lock, one key, and one person. Not spare or duplicate keys held by **anyone**. OSHA also states there will be a full safety program in place before the issuing of the safety lockout equipment. This includes annual inspections, training, demonstration of the proper way of using lockouts, and above all no one has a key to your lockout but you.

2. Post Safety regulations states no duplicate keys.

3. Our not yet approved guideline states no duplicate keys.

4. I have spoke with Sharon Ford, East Sector of the Atlanta OSHA office and she told me the interpretation of CFR 29 Standard is ONE LOCK, ONE KEY, ONE PERSON. I fear for my life if any other keys are out of MY control.

TRAINING

E-mails from Mr. Batchor.

P1

Brenda Reed

From: "Wes Batchelor" <Wes.Batchelor@kmtc.com>
To: <brenreed@knology.net>
Sent: Wednesday, June 07, 2000 11:10 AM
Subject: Re: Buddy System,etc

Brenda,

Yes, I will forward you a copy. I tried to attach the file but that doesn't work in this e-mail system. I hope you don't get an unfinished e-mail saying I am attaching the file (the e-mail I was writing went away and I couldn't seem to retrieve it).

I'm not familiar with AR600-55. If it says operators need to be trained, tested, and licensed to operate generating units above 0.5kW, then there could well be a problem. We only went over the basics in class. You have been (not you personally, but the post people) operating the units for about 5 years. We only covered things that seemed to be an overall concern or where you, as class members, seemed to have questions and problems. It was a given going in that you were operators. If the Hill people don't give you certificates following installation and commissioning, either they didn't feel you needed them or it was an oversight on their part.

I'll check this AR600-55 requirement with a contact I have at Ft. Belvoir. More later,

Wesley

>>> "Brenda Reed" <brenreed@knology.net> 06/06/00 11:16PM >>>
Mr. Batchlor,
Could you please send me the original email that you sent to Mr. Pavliscsak on June 5th. I would prefer if you don't mind for you to send it to my home address. If you need an explanation I will be glad to send you one, but right now I need to just check something. If what you sent doesn't match what was forwarded to us I will send you a copy back. Thanks for your help.

Brenda

PS.
According to AR600-55 all military and DA civilians must be tested and licensed to operate any generator 0.5kw or higher. Think we fit into this category??. Talk to you soon.

p 2

Brenda Reed

From: "Wes Batchelor" <Wes.Batchelor@kmtc.com>
To: <brenreed@knology.net>
Sent: Thursday, June 08, 2000 8:43 AM
Subject: Re: Class, Testing, & Licensing

Brenda, you're welcome.

Now I'm confused. The Hill AFB or Ft. Belvoir group should adequately train & test operators before they leave equipment at any site. I'm sure they are aware of the regulations. If needed we can develop an operator certification course built around the requirements of AR600-55, TB600-1 and TB600-2. It would be a course of class instruction, written tests and demonstration of knowledge gained. This would be operation intensive with basic maintenance and troubleshooting included.

You see, I was told you were all operators and had been for about 5 years. I didn't hit the operations side too hard except where the governor and exciter-regulator systems had been upgraded. I was also told (and reminded several times) you were operators and not maintenance people. However, I know from experience that to be a good operator you need to know the equipment and be able to do basic maintenance on it. I hit some highlights in class. I'm glad we went over some things you didn't know.

About the substation: anytime electricity is stepped up or down, it is considered a substation. Sometimes they call a switchyard a substation, although I don't agree. At your plant, you have a three line output generating substation, where you generate at 4,160 volts and deliver at 12,470 volts.

The electrical safety part of the class went over the potential dangers of electricity and how to be safe around it. Nowhere did we go over how to work on circuits over 600 volts (I use the NEC's definition here as the break between low voltage and high voltage). To be able to work on 5 or 15 kV class electrical equipment, from a maintenance prespective, all eight of you need more training. This doesn't include racking out circuit breakers, because this is a safe practice where you are working totally from the 600 volt control side of the equipment. There are two substantial metal barriers between you and the higher voltage components in the rear. You don't need to be unduly fearful of that, just respect it and know how to do it.

The transformers are a different story. They appear to be safe enough. I don't care for the exposed bushings on top of the third one. All of you need to take an extra step around that one when you pass. If Hill AFB or Ft. Belvoir had followed conventional wisdom in placing the transformers, they would have been in a separately fenced area in a corner of the compound.

An attachment to the fax I sent James showed the minimum approach distance is 2'-2". This is for "qualified" employees, but we won't go there. If you, as operators, take reading from the gauges on the transformers, stay at least 3' away. There's nothing on the transformer you need to adjust or can repair.

I am working on the formal report at odd times. I gave James an e-mail version. This wasn't in the price for the class, so its an "as I can get to it" project.

More later,
Wesley

7/18/00

P3

Chapter 7
Mechanical or Ground Support Equipment

7–1. Qualification to operate

a. All military personnel and DA civilians must have an OF 346 and demonstrate their proficiency in order to operate the following mechanical or ground support equipment:

(1) Electrical power generating equipment, 0.5 KW and above (electric motor driven, diesel engine driven, gasoline engine driven, and gas turbine driven sets).

(2) Gas generating equipment, all sizes and capacities (such as oxygen, nitrogen, and acetylene).

(3) Water purification sets, all sizes and capacities.

(4) Air compressors, all pressures (not to include installed automatically controlled units).

(5) Materiel or cargo handling equipment, all sizes and capacities, for example, forklift trucks, warehouse tractors and cranes, straddle trucks, and flightline rugs.

(6) Railroad equipment, all sizes and capacities (locomotive, locomotive cranes, and motor cars).

(7) Bridging equipment, all bridge erection boats, mobile assault float bridge or ferry transporters, and outboard motors.

(8) Self-propelled amphibious equipment, all sizes and capacities (LARC–V, –XV, and –LX, and LACV–30).

(9) Construction equipment or off-road equipment, all sizes and capacities (including but not limited to tractors, wheeled or tracked; cranes, wheeled or tracked; front loaders; small emplacement excavators (SEEs); motorized or self-propelled scrapers, rollers, sweepers, and earth augers; saw mills; chain saws; snow plow-rotary; ditching machines; rock crushing and screening plants; asphalt batch plants; concrete mixers and plants; asphalt and concrete spreaders; water and bituminous distributors; hot oil heaters; and hydraulic or mechanical vibrating tampers).

(10) Heating and cooling equipment, all sizes and capacities (such as air conditioning and refrigeration units powered by liquid fuel engines, space duct-type heaters using liquid fuel, and steam cleaning equipment).

(11) Pumping equipment; all pumps 50 gallons per minute (GPM) and above, when powered by liquid fuel engines.

(12) Printing presses and paper cutters, all makes and models, excluding manually operated paper cutters.

(13) Mine-detecting equipment, truck mounted; all makes and models.

(14) Utility element (power plant) used with the medical unit, self-contained, transportable hospital elements, all makes and models.

(15) Miscellaneous equipment, any equipment determined by the local commander or higher authority to warrant licensing such as powered lawn mowers; agricultural machinery; food preparation equipment; field ranges; immersion heaters; laundry equipment; snowmobiles; detecting sets, mine portable, AN/PRS–7 and AN/PSS–11.

b. Application of these procedures will begin with the selection of persons to be licensed. The tests prescribed herein will be given throughout the Army. Successful completion of the prescribed tests will not automatically qualify a person for retention as an Army vehicle or equipment operator if, for medical, disciplinary, or other reasons (including prior accident record, attitude toward driving, use of intoxicants or pathogenic drugs), he or she appears to be incapable of continuing as a safe and competent vehicle or equipment operator. The issuing authority may revoke an operator's OF 346 based on the recommendations of safety or medical personnel.

c. Training and education programs designed to establish and reinforce safe operating habits and positive attitudes toward driving are required for motor vehicle licensing and apply to all operators. Minimum training requirements are contained in chapter 4 for vehicles and chapter 7 for other equipment. MACOM and MUSARC commanders may establish more stringent training programs.

7–2. Procedures

a. Equipment operator testing and licensing procedures for self-propelled equipment will conform with this regulation. Additional procedures for materiel-handling equipment are contained in TB 600–2. Physical evaluation measures and operator performance tests will be used.

b. Equipment operator testing and licensing procedures for non-self-propelled equipment will conform to the requirements contained in TB 600–1 and TB 600–2.

c. Applicants will be required to satisfactorily demonstrate their proficiency in operating each piece of equipment for which they are to be licensed.

d. Qualification on non-self-propelled equipment will be entered on DA Form 348, section I, and training will be entered in section III.

Chapter 8
Night Vision Devices

8–1. Standardized training, testing, and licensing

This chapter provides commanders with standardized training, testing, and licensing requirements for use of night vision devices (NVDs) by motor vehicle operators. Night vision devices include image intensification and thermal imaging devices (less weapon sights).

8–2. Training strategy

a. Commanders will manage NVD training programs according to this regulation and other applicable publications (see para 8–3), and determine what type of night training program best supports the unit mission.

b. Commanders will establish speed limitations for all modes of driving with NVDs. In addition, commanders at all levels must understand the devices' limitations to conduct effective risk assessments for NVD training (see FM 21–305 and TC 21–305–2 for technical information on NVDs to assist in making these important decisions and assessments).

c. The ability to drive with night vision devices is a highly perishable skill. Proficiency can be developed and maintained only through continuous hands-on training. Units will conduct qualification and refresher training per guidance in paragraphs 8–5 and 8–6.

8–3. Training materials

The following are useful training materials:

a. FM 21–305, *Manual for the Wheeled Vehicle Driver*: night vision goggle (NVG) driving techniques and procedures, mission planning, safety factors, training programs, and guidance on unit standard operating procedures (SOPs) for wheeled vehicle, motorcycle, and ATV operators.

b. TC 21–305–2, *Training Program for Night Vision Goggle Driving Operations*: NVG lesson plans, training calendar, written exam, eye charts, and paper transparencies.

c. TC 21–306, *Tracked Combat Vehicle Driver Training*: Procedures for the tracked vehicle operator.

d. Technical Manuals (TMs) pertaining to specific types of NVDs provide maintenance and operator instructions.

8–4. Night vision device instructors

a. Instructor training for wheeled vehicles will comply with TC 21–305–2, and the guidelines in this chapter for qualification and refresher training.

b. Instructors must be NVD qualified, and licensed on the vehicles on which training is conducted, and must be designated in writing by the commander as certified NVD instructors.

c. Instructors will implement the commander's program, conduct qualification and refresher training, administer road tests, and keep the commander informed on the overall status of the unit's NVD profile.

P4

ENGINE SYSTEMS, INC.
1220 S. Washington St., Rocky Mount, NC 27801
P.O. Box 1928, Rocky Mount, NC 27802-1928
Telephone: 252/977-2720
Fax: 252/446-1134

TELEFAX

DATE: June 2, 2000

COMPANY: DPW, UMCS,

FAX NUMBER: 706/791-4222

ATTENTION: Mr. James Pavliscsak

REFERENCE: Clearance, Electrical

FROM: Wesley Batchelor WB
Project Engineer, Technical Services

PAGE: 1 of 5

Attached please find a dissertation on Guarding Live Parts (pages 72-73). It is taken from the High Voltage Safe Work Practices Standard from Duke Power, and concerns design and operation of substations. Where you like to call it that or not, that is what you have there – a generating substation.

Reference is given to Table V-1 on page 91 to clearance from live parts. At 13.8 kV class, you need 9 feet vertical to the bare parts.

Table V-6 on page 96 gives minimum approach distances to live parts for qualified employees, which is 2 feet 2 inches. I don't believe you have any qualified employees for 15kV. We don't work on 5 or 15kV equipment live. When I need that, I call my friend Barry!

4. Servicing Substation Equipment

   a. Existing equipment:

      1. Where servicing such equipment compromises worker safety, consideration should be given to relocating such equipment.

      2. If the equipment cannot be relocated, alternate safety procedures **shall** be employed, such as de-energizing and/or requiring appropriate personal safety equipment and clothing for work in close proximity to energized parts.

   b. New design:

      Auxiliary equipment and services (area lighting, P.A. systems, etc.) **shall not** be mounted on, or in close proximity to, substation/ high-voltage yard structures if such positioning will breach dimensional clearance restrictions defined elsewhere in this standard.

5. Guarding of Live Parts

   Guards **shall** be provided around all live parts where the clearance requirements of Table V-1 cannot be met. (Refer to NESC Section 124.)

   a. When necessary to ensure reasonable safety, certain parts **shall** be guarded or given clearances in excess of those specified. Those parts include those over or near passageways through which material may be carried and those on or near spaces such as corridors, storerooms, and boiler rooms used for non-electrical work. The guards **shall** be substantial and **shall** completely shield or enclose the energized parts without openings. Guards for spaces accessible to unqualified personnel should be removable only by means of tools or keys.

   b. Each portion of parts whose potential is unknown **shall** be guarded in accordance with "a" above, on the basis of the maximum voltage which may be present on the surface of that portion.

(Examples of such parts include telephone wires exposed to induction from high-voltage lines, ungrounded neutral connections, ungrounded frames, ungrounded parts of insulators or surge arrestors, or ungrounded instrument cases connected directly to a high-voltage circuit.)

c. Guards less than 4 inches outside the guard zone **shall** completely enclose the parts from contact up to the heights listed in column 2 of Table V-1. They **shall not** be closer to the live parts than the distance specified in Column 4 of Table V-1, except when suitable insulating material is used with circuits less than 2500 V to ground.

d. Covers or guards that **must** at any time be removed while the parts they guard are energized **shall** be designed so that they cannot readily be brought into contact with the energized parts.

6. Rights-of-Way

Rights-of-way **shall** be maintained in a clear and orderly condition, with trees and brush kept well clear of overhead lines.

7. Storage of Materials in Rights-of-Way

In areas that are not restricted to qualified employees and that are located near energized parts or equipment, materials and equipment **shall not** be stored closer than the following distances. To these minimum clearances, enough distance **shall** be added to account for the following:

a. Maximum sag and side swing by conductors.

b. The space needed by the equipment used to handle the stored materials.

c. For lines and equipment energized at 50 KV or less, the distance is 10 feet (305cm). (10 foot rule).

d. For lines and equipment energized at more than 50 KV, the distance is 10 feet (305cm) plus 4 inches (10cm) for every 10 KV over 50 KV.

In areas restricted to qualified employees, material may not be stored within the working space around energized lines or equipment.

X. APPENDICES

Appendix A - Tables and Diagrams

Clearance from Live Parts

PHASE TO PHASE NOMINAL VOLTAGE	VERTICAL CLEARANCE OF UNGUARDED PARTS			HORIZONTAL CLEARANCE OF UNGUARDED PARTS			CLEARANCE GUARD TO LIVE PARTS		
KV	FEET	IN.	M	FEET	IN.	M	FEET	IN.	M/cm
.6 TO 2.4	8	9	2.67	3	4	1.02	0	3	7.62 cm
7.2	8	10	2.69	3	4	1.02	0	4	10.1 cm
13.8	9	0	2.74	3	6	1.07	0	6	15.2 cm
23.0	9	3	2.82	3	9	1.14	0	9	22.9 cm
34.5	9	6	2.90	4	0	1.22	1	0	30.5 cm
46.0	9	10	3.00	4	4	1.32	1	4	40.6 cm
69.0	10	5	3.18	4	11	1.50	1	11	58.4 cm
115.0	11	7	3.53	6	1	1.85	3	1	94.0 cm
138.0	12	2	3.71	6	8	2.03	3	8	1.12 M
161.0	12	10	3.91	7	4	2.24	4	4	1.32 M
230.0	14	10	4.52	9	4	2.85	6	4	1.93 M
362.0	20	2	6.15	14	8	4.47	11	8	3.56 M
550.0	28	4	8.64	22	10	6.96	19	10	6.05 M

Note: THE TABLE IS BASED ON NESC 1990.

NOTE: OBTAIN DISTANCES FOR INTERMEDIATE VOLTAGES BY INTERPOLATION.

TABLE V-1.

Minimum Approach Distance

MINIMUM APPROACH DISTANCE TO ENERGIZED ALTERNATING CURRENT PARTS FOR QUALIFIED EMPLOYEES.

Voltage - Phase to Phase			Distance		
KV			Feet	Inches	Meters
0.05	-	1.0	Avoid Contact		Avoid Contact
1.1	-	15	2	2	.66
15.1	-	36	2	7	.79
36.1	-	46	2	10	.86
46.1	-	72.5	3	6	1.07
72.6	-	121	4	3	1.30
138	-	145	4	11	1.50
161	-	169	5	8	1.73
230	-	242	7	6	2.29
345	-	362	12	6	3.81
500	-	550	18	1	5.51
765	-	800	26	0	7.92

Note: The table is based on Table R-6 29 CFR 1910.269 (94/1)

TABLE V-6

P9

Fullbright, Reuben R.
From: Griffin, Gordon D.
Sent: Tuesday, February 23, 1999 7:06 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: Dead Bus Relays

I HAVE NO IDEA OF WHAT YOU ARE ASKING ABOUT I AM NOT TRAINED IN HIGH VOLTAGE CONTROLS

-----Original Message-----
From: Pavliscsak, James V.
Sent: Friday, February 19, 1999 10:08 AM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: FW: Dead Bus Relays

Can anyone tell me if both units can be started dead load at the same time?

.....
From: Stubblefield, Glenn Jr
Sent: Friday, 19 February, 1999 10:02 AM
To: 'Hunter, Mike'
Cc: Oglesby, Curtis D.; 'Oglesby, Curtis (CRIS)'; 'Wise, Billy'; Pavliscsak, James V.
Subject: Dead Bus Relays

Mike,

Are there dead bus relays or suitable controls installed to allow the generating units to operate in parallel without synchronizing to the local utility?

The concern is that the units will hunt and potentially disconnect if the local utility isn't available for synching. In the past, we have operated just one unit (4.5Meg) on our emergency bus. In the event we have to operate more than on unit in the absence of local utility power, this synching concern will exist. I understand that Billy Wise has been trying to contact you to discuss this issue. Thanks.

Glenn Stubblefield Jr. Phone: 791-6184
Energy Engineer DSN 780-6184
DPW, Public Works Division Fax: (706) 791-4222
Facilities Engineering Branch Pager: (706) 667-3688
Fort Gordon, GA 30905-5040 15th Street, Bldg 14600

p 10

Fullbright, Reuben R.
From: Pavliscsak, James V.
Sent: Monday, February 23, 1998 9:02 AM
To: Fullbright, Reuben R.
Cc: Oglesby, Curtis D.; '- Oglesby, Curtis D.'
Subject: Failure to perform

I left instructions Friday to install the new ball valve at the generator site. I want an explanation as to why it wasn't done Friday, and an explanation as to why it still isn't installed on Monday.

James V. Pavliscsak
Manager, UMCS, Facilities
Engineering, PWD, DPW
Phone: (706) 791-6423
FAX: (706) 791-7808
DSN: 780-6423

P11

Fullbright, Reuben R.

From: Fullbright, Reuben R.
Sent: Wednesday, November 11, 1998 10:17 AM
To: Pavliscsak, James V.
Cc: Oglesby, Curtis D.; Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Stubblefield, Glenn Jr; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: REPAIR LIST FOR GENERATORS

Again Gordy and I have gone out and done a walk thru inspection of all units to verify the problems have not repaired themselves, as a matter of fact you will see we listed two more units for exhaust leaks. The only unit not listed now was the one that was shut down all summer with other problems, but as stated before all SHOULD be replaced.
I noticed the complaining from my first note was deleted but again we are wasting time. When I say All that means each generator, if I gave numbers it meant certain units. We have managed to turn a two page report into an eight page report while only separating fly shit from black pepper!
We also need to know what parts have been ordered, are in stock or are to be supplied by depot since many repairs listed are depot level.
When units are repaired they need to be thoroughly steam cleaned inside to get rid of soot.

-----Original Message-----
From: Pavliscsak, James V.
Sent: Tuesday, November 10, 1998 8:21 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Cc: Oglesby, Curtis D.; '- Oglesby, Curtis D.'; Stubblefield, Glenn Jr
Subject: REPAIR LIST FOR GENERATORS
Importance: High

I attempted to put together a list to furnish Stubblefield, however your comments are too general and exceed the scope of what the maintenance team will be doing.

The items such as concrete pads, roofs, fuel lines to the plant, eye wash, etc. are beyond the scope of their work. These items need to be on a separate list.

I need a list of actual repairs that need to be accomplished. Prepare an itemized list by generator and control van unit. I need this list complete by Monday 16 Nov. This is now your number one priority. At least one operator should be working full time on each shift until the list is complete.

Keep in mind we supply parts. Keep a list of parts you need to order to make the repairs.

1. UNIT 1-1
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
6. Exhaust leaks on 3 units now, all should be replaced.
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
. All gauges and safeties need to be checked and calibrated.

2. UNIT 1-2
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
. Coolant leaks on several units at low water cut-off switches. (which units? - Parts on hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
6. Exhaust leaks on 3 units now, all should be replaced.
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
. All gauges and safeties need to be checked and calibrated.

3. UNIT 1-3
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.(which units - how bad are the leaks? - parts an hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
. All gauges and safeties need to be checked and calibrated.

4. UNIT 2-1
a. Exhaust leaks - gaskets need changing
b.Turbo charger making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.(which units - how bad are the leaks? - parts an hand?)
. Coolant leaks on several units at low water cut-off switches. (which units? - Parts on hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
6. Exhaust leaks on 3 units now, all should be replaced.

P13

9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.

8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)
. All gauges and safeties need to be checked and calibrated.

5. UNIT 2-2
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.(which units - how bad are the leaks? - parts an hand?)
. Coolant leaks on several units at low water cut-off switches. (which units? - Parts on hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
6. Exhaust leaks on 3 units now, all should be replaced.
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
. All gauges and safeties need to be checked and calibrated.

6. UNIT 2-3
a. Knocking noise coming from bottom end of engine. (north or south??)
b. Exhaust leaks - gaskets need changing (which cylinders)
c. Sync Meter - voltage fluctuates when up to speed and trying to sync with Ga power.
1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.(which units - how bad are the leaks? - parts an hand?)
. Coolant leaks on several units at low water cut-off switches. (which units? - Parts on hand?)
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly
6. Exhaust leaks on 3 units now, all should be replaced.
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
7. Unit 2-3 still has knocking noise coming from bottom end of engine.
. All gauges and safeties need to be checked and calibrated.

7. Control Van 1

14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!

15. Contacts on all breakers need to be replaced.

16. Arc shields need to be replaced.

. All gauges and safeties need to be checked and calibrated.

8. Control Van 2

15. Contacts on all breakers need to be replaced.

16. Arc shields need to be replaced.

17. Micro switch on breaker I taped together over a year ago should be replaced.

. All gauges and safeties need to be checked and calibrated.

1. Pre-filters on all units need to be replaced. (air, fuel, or oil????? - parts on hand?)

2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.(which units - how bad are the leaks? - parts an hand?)

3. Coolant leaks on several units at low water cut-off switches. (which units? - Parts on hand?)

4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).

5. Exhaust dampers/baffles not working correctly.

6. Exhaust leaks on 3 units now, all should be replaced.

9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.

10. Need to clean and/or replace sight glasses on radiators.

11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.

14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!

15. Contacts on all breakers need to be replaced.

16. Arc shields need to be replaced.

17. Micro switch on breaker I taped together over a year ago should be replaced.

P 15

18. There need to be a return line run back to plant fuel tank to slow down fuel spills.

19. As requested before original start up, we need concrete pad for entire area with curbing and oil separator so we have something solid to work on and can wash units.

. All g21auges and safeties need to be checked and calibrated.

POSTON
1. Replace exhaust header gaskets, all 6 units (those not blown now, will be soon)

3. Replace coffin cover gaskets, all 6 units

4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground

5. Get the switchyard panels working, especially the kV meter
   a. move the PT primary taps up to read the overhead line, not unit 2
   b. add another kV meter to read the Emergency Bus
   c. get the synchroscope to compare the overhead line and the Emergency Bus

6. Pave the lot, with oil/water separator feeding to the sanitary sewer

7. Add a shed, with spill containment, for waste barrels

8. Change disposable air filters

RUSEK
In addition, I once again bring up the eye-wash stations. From what I have read, these are necessary because of the potential contact with No. 2 fuel oil, battery acid, etc. This is a safety item and should not be put on the back burner.

COMBS
NO REPLY

ELLIS
NONE

GRIFFIN
NO REPLY

REED
Do you want a list of repairs needed or a list of all work that needs to be done?
Repairs: exhaust leaks on PP2-3 first. All the units have some exhaust leaks. they are getting worse everyday.Oil leaks at generator end that are pooling under floor at back of engine about 2" deep (should be dry) Voltage fluctuation when up to speed and syncing with Ga power.

Work:
Filters left that need changing are:
Turbo filters, cut-off fuel filters, acorn filters, air box filters, filters in doors in exciter room,

Coffin cover gaskets (probably needs scraping also) Gaskets between sump pump and crankcase, gasket between crankcase and coffin covers. Belts need adjusting. Fittings where oil is leaking and running along the lines. Oil needs changing in soak back filters. All gauges need changing.

I will start a detailed list of every thing per unit.

SKVARCA
I concur with this list and add one item; Replace all gaskets from the top of head up. This would repair most of the oil leaks. It may also help to clean all the oil cooler.

20. As requested before original start up, we still need a roof-over covering entire area since temperature exceeded 110 degrees in vans this summer with A/C running all out. This will also help in inclement weather.

P16

P 17

Fullbright, Reuben R.

From: Fullbright, Reuben R.
Sent: Tuesday, February 24, 1998 10:06 PM
To: Pavliscsak, James V.; Oglesby, Curtis D.
Subject: reply to question

Here is the answer you requested as to why the fuel valve was not put in by myself.

When you handed me the valve Friday afternoon at 15:30 and said "Here is the valve", I immediately handed it to Brenda and told her to go put it in. You were still standing there and made no comment to the contrary. I felt this necessary due to the fact that Brenda is scared of the generators due to lack of knowledge. When Rick commented on not having knowledge of generators the answer was to send operators to the site on a daily basis so we could get used to them.

I spent most of the last 2 weeks of day shift working on the generators while the Prime Power team was here, working on the same generator with the fuel leak, which has been down since last summer and then red tagged by the team when they left, so I saw no great rush to replace valve.

The reason for picking Brenda is, lately every time something has to be done at the generators she says it is not her job. She may be right so now I need clarification as to who does what. We need to how work at generators is to be assigned. I for one do not mind the work, but if it is not part of our job description as Brenda claims, then if I am going to be required to do the work other operators are not expected to do, I would like to have the proper training and be thus compensated for the extra duties.

While on the subject of the generators I was written up the other day for not filling out the log sheets. When Doug and I were up there to try to get units on line, I saw no reason to make special notes since everything I found showed up from doing the pre-startup checkout as given to all operators when the generators were put in. If the operators that wrote the note had followed written procedure, they would have identified and corrected the same problems. So are we to write down each move we make in the new log books, if so it will take a much longer time to put generators on line.

To clear up later problems, provide the following in writing:
1. Who does what at generators? When installed UMCS was to check fluids and operate only.
2. If we are to work on generators, why can't we get any training?
3. What are we to enter into log books some people want to write books when one liners will do if we all know what is going on.
4. Since we started operating the generators, operating procedures have changed so much they are hard to follow, please provide operating SOP for us to follow.

P 18

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Thursday, September 09, 1999 9:21 PM
To: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Cc: Oglesby, Curtis D.; Stubblefield, Glenn Jr; Pavliscsak, James V.
Subject: Follow-up on PP1-1

I disassembled the shell of the control wiring connector on the governor.

Excellent work! Good, clean solder joints, well applied heat-shrink tubing to insulate the wiring and keep it aligned, strong termination of the flex at the connector shell.

Danged if I see what could have been a problem.

After I buttoned everything back up, I started the unit 3 times without problem.

If anyone catches this unit in the act of messing up and sees the problem, please tell me what it was.

Charlie

Charles F. Poston
DPW, Facilities Division, UMCS
Fort Gordon, GA 30905
DSN: 780.6423
Comm: 706.791.6423

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Thursday, June 04, 1998 6:41 PM
To: Oglesby, Curtis D.
Cc: Pavliscsak, James V.; Poston, Charles F.; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: FW: Power Plant

Curt-

I concur fully with Brenda's concerns.

We are operating a lot of large, heavy machinery without any real effort at maintenance. No one in the crew has had any training on the maintenance of military EMD power plants and the vast majority of problems that are developing are well above operator maintenance levels.

We have already replaced a governor without performing the necessary calibration checks as required by the manufacturer. We haven't the training or the test equipment to do this. Other attempts at maintenance have been made, more or less successfully, based on the knowledge of operators gained by working on other types of equipment. This has entailed the use of nonstandard (that is non-MIL spec) parts and may reflect adversely on whatever agreement we are holding these power plants under.

The concept of maintenance by Johnson Controls World Services, Inc. appears to be a non-starter. While Tommy has proved very helpful on the infrequent occasions we have been able to get his services, there is apparently no mechanism in place to define JCWSI maintenance responsibilities or to provide ongoing (PM) maintenance. There have been arguments over what work is "in the contract" or whether it is "paid for".

Heavy machinery requires heavy maintenance.

That maintenance can be provided in a timely fashion, on PM schedules and as SO's immediately upon identification of the problem, or the equipment can be run into the ground, jack-legged to operate with non-standard parts, and generally ignored till it dies.

If the full value of operating AND MAINTAINING the equipment is not being recouped by operating it, the program won't work economically.

If the full value IS being realized, the money should be invested in keeping the equipment on line and functioning properly.

The point should be made that this program isn't about a feather in anybody's cap, or allowing the diversion of big bucks that would have been needed to buy electricity to the construction of edifices and showplaces. It has merit on its own as a conservation effort and should be supported for that reason alone. Any additional career-path benefits accruing to anyone are just icing on their particular cake.

I think the program is worth pursuing aggressively, both to save expense to the government for electricity and to set an example to the rest of the electricity consuming public of energy conservation.

Any enlightenment you can give us about any of these concerns would be greatly appreciated.

Charlie

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Thursday, October 08, 1998 4:11 PM
To: Pavliscsak, James V.
Cc: Oglesby, Curtis D.; Stubblefield, Glenn Jr; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: FW: Repair list for generators

James-

There are a lot of very valid points raised here. I concur with Reuben's assessment of our (UMCS's) view of the way things get handled here- pile it un UMCS, but restrict what they have to work with while requireing that they be responsible for even more work. I think we are approaching critical mass on this matter and should address it in a positive manner before it becomes a negative influence on the work effort.

Charlie

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, October 08, 1998 3:08 PM
To: Poston, Charles F.; Pavliscsak, James V.; Reed, Brenda L.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Rusek, Richard D.; Ellis, William E. Jr
Cc: Oglesby, Curtis D.; Fullbright, Reuben R.; Stubblefield, Glenn Jr
Subject: RE: Repair list for generators

Here is the list of work needed on generators again.
1. Pre-filters on all units need to be replaced.
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.
3. Coolant leaks on several units at low water cut-off switches.
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly.
6. Exhaust leaks on 3 units now, all should be replaced.
7. Unit 2-3 still has knocking noise coming from bottom end of engine.
8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.
12. Need to clean out, flush and inspect oil/water heating units.
13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
15. Contacts on all breakers need to be replaced.
16. Arc shields need to be replaced.
17. Micro switch on breaker I taped together over a year ago should be replaced.
18. There need to be a return line run back to plant fuel tank to slow down fuel spills.
19. As requested before original start up, we need concrete pad for entire area with curbing and oil separator so we have something solid to work on and can wash units.
20. As requested before original start up, we still need a roof-over covering entire area since temperature exceeded 110 degrees in vans this summer with A/C running all out. This will also help in inclement weather.

1. Replace exhaust header gaskets, all 6 units (those not blown now, will be soon)

2. Recal voltage regulators, all units

3. Replace coffin cover gaskets, all 6 units

4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground

5. Get the switchyard panels working, especially the kV meter.
   a. move the PT primary taps up to read the overhead line, not unit 2
   b. add another kV meter to read the Emergency Bus
   c. get the synchroscope to compare the overhead line and the Emergency Bus

6. Pave the lot, with oil/water separator feeding to the sanitary sewer

7. Add a shed, with spill containment, for waste barrels

8. Change disposable air filters

-----Original Message-----
From: Pavliscsak, James V.
Sent: Tuesday, September 29, 1998 3:12 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Repair list for generators

I've asked for a list of required repairs to be accomplished during the winter. I've received nothing from any of you. Stop complaining and get me a list. I want a response from each of you.

Fullbright, Reuben R.
From: Fullbright, Reuben R.
Sent: Thursday, October 08, 1998 3:08 PM
To: Poston, Charles F.; Pavliscsak, James V.; Reed, Brenda L.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Rusek, Richard D.; Ellis, William E. Jr
Cc: Oglesby, Curtis D.; Fullbright, Reuben R.; Stubblefield, Glenn Jr
Subject: RE: Repair list for generators

Here is the list of work needed on generators again.
1. Pre-filters on all units need to be replaced.
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.
3. Coolant leaks on several units at low water cut-off switches.
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly.
6. Exhaust leaks on 3 units now, all should be replaced.
7. Unit 2-3 still has knocking noise coming from bottom end of engine.
8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.
12. Need to clean out, flush and inspect oil/water heating units.
13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
15. Contacts on all breakers need to be replaced.
16. Arc shields need to be replaced.
17. Micro switch on breaker I taped together over a year ago should be replaced.
18. There need to be a return line run back to plant fuel tank to slow down fuel spills.
19. As requested before original start up, we need concrete pad for entire area with curbing and oil separator so we have something solid to work on and can wash units.
20. As requested before original start up, we still need a roof-over covering entire area since temperature exceeded 110 degrees in vans this summer with A/C running all out. This will also help in inclement weather.
21. All gauges and safeties need to be checked and calibrated.

If all above items are taken care of and a through calibration during yearly inspection, and repairs are made to units during inspection instead of just identifying problems, we should be in better shape for next year.

That takes care of the list you asked for,

Of the items listed above, I know 90% have been turned in to you 4 times, work orders have been done, and we have talked to you and Curt several times about problems with no results being accomplished. You call it complaining,, thin skinned,,whining and others. We are out there working under extreme conditions with equipment that is dangerous when in good shape and deadly in the shape it is getting in.
Safety said they read 15PPM CO and 140 degree temperatures, we had already taken readings which could not be read because the CO meter pegged out and the thermometer I installed only went up to 250 degrees which was pegged out prior to melting down. Charlie was on site when they took readings and stated units had been shut down for 20 minutes before being taken.

I/we feel we are being abused since we see no results from what we are saying or work orders we are turning in. We are being told to go out and make repairs on units even though no one in EMCS has had any training which we have requested several times.

We at EMCS seem to get all the problems no one else wants; Emergency service orders, if Johnson Controls can't or doesn't take care of a building just give it to EMCS to handle the problem, we spend weeks and sometimes months doing design work for the engineering section only to have our work left out of contracts, when we review designs it becomes apparent they aren't even looking at buildings they are doing work in, we are often sent out to do COR staff work and have to write reports on buildings we check, we just seem to get a lot of work that is not ours.

For years we heard the reason for having the contract on the system was because the contractor could get parts for the system on a days notice. Lately it has taken days or even weeks for us to get parts orders out of this office due to having to call vendors, get prices, part number, if they deliver, tax information etc.. Now we are going to have to handle parts for the contractor without any increase in people to do the job. For over the past year I have heard several operators complain to you about work being done by contractor, answers received ranged from "They know what they are doing", "Don't rock the boat", and "We all have to get along". This summer when we had to run generators, you got a chance to see what everyone had been telling you about improper calibration. Instead of deducting from contract payment, you tell us to give them a service order for each point.

On points which are and have been failed for years although under contract which we were paying for are being dropped from the new contract without being repaired. Also while on contract problems, all of us know how often they pull good devices out of buildings, now we have to do check-out to determine if a device is bad. Most items need just calibration which will need to be done to determine if the device is really bad. Who is going to do this?

This is just a partial list of complaints, others will follow as we get closer to our big move I am sure.

-----Original Message-----
From: Poston, Charles F.
Sent: Tuesday, September 29, 1998 5:21 PM
To: Pavliscsak, James V.
Cc: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: RE: Repair list for generators

James-

1. Replace exhaust header gaskets, all 6 units (those not blown now, will be soon)

2. Recal voltage regulators, all units

3. Replace coffin cover gaskets, all 6 units

4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground

5. Get the switchyard panels working, especially the kV meter.
   a. move the PT primary taps up to read the overhead line, not unit 2
   b. add another kV meter to read the Emergency Bus
   c. get the synchroscope to compare the overhead line and the Emergency Bus

6. Pave the lot, with oil/water separator feeding to the sanitary sewer

7. Add a shed, with spill containment, for waste barrels

8. Change disposable air filters

-----Original Message-----
From: Pavliscsak, James V.
Sent: Tuesday, September 29, 1998 3:12 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Repair list for generators

I've asked for a list of required repairs to be accomplished during the winter. I've received nothing from any of you. Stop complaining and get me a list. I want a response from each of you.

P 25

Pavliscsak, James V.

Subject: REPAIR LIST FOR GENERATORS

Here is the list of work needed on generators again.
FULLBRIGHT
1. Pre-filters on all units need to be replaced.

2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.

3. Coolant leaks on several units at low water cut-off switches.

4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).

5. Exhaust dampers/baffles not working correctly.

6. Exhaust leaks on 3 units now, all should be replaced.

7. Unit 2-3 still has knocking noise coming from bottom end of engine.

8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)

9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.

10. Need to clean and/or replace sight glasses on radiators.

11. Need to clean out oil coolers and flush.

12. Need to clean out, flush and inspect oil/water heating units.

13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.

14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!

15. Contacts on all breakers need to be replaced.

16. Arc shields need to be replaced.

17. Micro switch on breaker I taped together over a year ago should be replaced.

18. There need to be a return line run back to plant fuel tank to slow down fuel spills.

19. As requested before original start up, we need concrete pad for entire area with curbing and oil separator so we have something solid to work on and can wash units.

20. As requested before original start up, we still need a roof-over covering entire area since temperature exceeded 110 degrees in vans this summer with A/C running all out. This will also help in inclement weather.

21. All gauges and safeties need to be checked and calibrated.

If all above items are taken care of and a through calibration during yearly inspection, and repairs are made to units during inspection instead of just identifying problems, we should be in better shape for next year.

POSTON

1. Replace exhaust header gaskets, all 6 units (those not blown now, will be soon)

2. Recal voltage regulators, all units

3. Replace coffin cover gaskets, all 6 units

4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground

5. Get the switchyard panels working, especially the kV meter
   a. move the PT primary taps up to read the overhead line, not unit 2
   b. add another kV meter to read the Emergency Bus
   c. get the synchroscope to compare the overhead line and the Emergency Bus

6. Pave the lot, with oil/water separator feeding to the sanitary sewer

7. Add a shed, with spill containment, for waste barrels

8. Change disposable air filters

RUSEK
In addition, I once again bring up the eye-wash stations. From what I have read, these are necessary because of the potential contact with No. 2 fuel oil, battery acid, etc. This is a safety item and should not be put on the back burner.

COMBS
NO REPLY

ELLIS
NONE

GRIFFIN
NO REPLY

REED
Do you want a list of repairs needed or a list of all work that needs to be done?
Repairs: exhaust leaks on PP2-3 first. All the units have some exhaust leaks. they are getting worse everyday.Oil leaks at generator end that are pooling under floor at back of engine about 2" deep (should be dry) Voltage fluctuation when up to speed and syncing with Ga power.

Work:
Filters left that need changing are:
Turbo filters, cut-off fuel filters, acorn filters, air box filters, filters in doors in exciter room,

Coffin cover gaskets (probably needs scraping also) Gaskets between sump pump and crankcase, gasket between crankcase and coffin covers. Belts need adjusting. Fittings where oil is leaking and running along the lines. Oil needs changing in soak back
filters. All gauges need changing.

I will start a detailed list of every thing per unit.

SKVARCA
I concur with this list and add one item; Replace all gaskets from the top of head up. This would repair most of the oil leaks. It may also help to clean all the oil cooler.

Power Plant P 27

From: "Griffin, Gordon D." <griffing@emh.gordon.army.mil>
"breed46@juno.com"' <breed46@juno.com>,"'GORDY HOME"',
<GORDY--G@juno.com>
. Tue, 27 Oct 1998 01:41:41 -0500
Subject: FW: REPAIR LIST FOR GENERATORS

> -----Original Message-----
> From: Griffin, Gordon D.
> Sent: Tuesday, October 27, 1998 1:41 AM
> To: Pavliscsak, James V.; Combs, Dorsey D.; Ellis, William E. Jr;
> Fullbright, Reuben R.; Poston, Charles F.; Reed, Brenda L.; Rusek, Richard
> D.; Skvarca, Neal M.; Griffin, Gordon D.
> Cc: Stubblefield, Glenn Jr; Oglesby, Curtis D.; '- Oglesby, Curtis D.'
> Subject: RE: REPAIR LIST FOR GENERATORS
>
> I think that these problems are reel and need to be fix this time every
> time we have a team come here they hit the easy problems then run. If they
> are not going to do the proper maintenance on there equipment then someone
> needs to get off the pot and get a qualified trained company to do the
ork.
lost of this year we had at least one unit down because of governors
d static exciter circuit problems these items that will be replaced if
> upgraded. This type of work is suppose to be depot level way above the
> level of the personal at FT Gordon
> doing the maintenance and deftness above the level of a dumb operator.
> If these problems are not corrected it if only a mater of time before
> someone is hut seriously or even killed. None of us have ever received
> training for working with high voltage or in the area of it.
> I also have a question about what is the policy for running these
> units this winter and at what prices. Last year we could not run units
> when plant was on oil , no piping has been changed as far as I know.
>
> GORDY
> -----Original Message-----
> From: Pavliscsak, James V.
> Sent: Monday, October 26, 1998 10:03 AM
> To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; -
> Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; -
> Skvarca, Neal
> Cc: Stubblefield, Glenn Jr; Oglesby, Curtis D.; '- Oglesby, Curtis D.'
ubject: REPAIR LIST FOR GENERATORS

ook over these items and see if there is anything you need to add.
>
> FULLBRIGHT

> 1. Pre-filters on all units need to be replaced.
>
> 2. Turbo charger seals and gaskets on several units leaking down on
> shafts to generator.
>
> 3. Coolant leaks on several units at low water cut-off switches.
>
> 4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many
> gaskets, seals and lines at cam gear end of engines and inspection
> holes(hand holes).
>
> 5. Exhaust dampers/baffles not working correctly.
>
> 6. Exhaust leaks on 3 units now, all should be replaced.
>
> 7. Unit 2-3 still has knocking noise coming from bottom end of engine.
>
> 8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem
> caused by T/C running out of balance due to exhaust leaks for so long)
>
> 9. Need to install truly matched belts on fan shafts. Belts which were put
> on were not matched leading to excess slap and belts jumping off.
>
> 10. Need to clean and/or replace sight glasses on radiators.
>
> 11. Need to clean out oil coolers and flush.
>
> 12. Need to clean out, flush and inspect oil/water heating units.
>
> 13. Injectors need to be cleaned and bench checked to insure proper
> operation. This will cut down on excess smoking.
>
> 14. Operation units need to be checked out and calibrated to stop problem
> with voltage/kvar bouncing. From talking to depot, voltage regulator
> needs to be replaced. This is depot level repair work!
>
> 15. Contacts on all breakers need to be replaced.
>
> 16. Arc shields need to be replaced.
>
> 17. Micro switch on breaker I taped together over a year ago should be
> replaced.
>
> 18. There need to be a return line run back to plant fuel tank to slow
> down fuel spills.
>
> 19. As requested before original start up, we need concrete pad for entire
> area with curbing and oil separator so we have something solid to work
> and can wash units.
>
> 20. As requested before original start up, we still need a roof-over

> covering entire area since temperature exceeded 110 degrees in vans

mer with A/C running all out. This will also help in inclement
ıer.
>
> 21. All gauges and safeties need to be checked and calibrated.
>
> If all above items are taken care of and a through calibration during
> yearly inspection, and repairs are made to units during inspection
instead
> of just identifying problems, we should be in better shape for next
year.
>
> POSTON
> 1. Replace exhaust header gaskets, all 6 units (those not blown now,
will
> be soon)
>
> 2. Recal voltage regulators, all units
>
> 3. Replace coffin cover gaskets, all 6 units
>
> 4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground
>
> 5. Get the switchyard panels working, especially the kV meter
> a. move the PT primary taps up to read the overhead line, not unit
2
b. add another kV meter to read the Emergency Bus
. get the synchroscope to compare the overhead line and the
gency
> Bus
>
> 6. Pave the lot, with oil/water separator feeding to the sanitary sewer
>
> 7. Add a shed, with spill containment, for waste barrels
>
> 8. Change disposable air filters
>
> RUSEK
> In addition, I once again bring up the eye-wash stations. From what I
> have read, these are necessary because of the potential contact with
No. 2
> fuel oil, battery acid, etc.This is a safety item and should not be put
on
> the back burner.
>
>
>
> COMBS
> NO REPLY
>
> ELLIS
> NONE

IFFIN
O REPLY
>
> REED

p 30

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Wednesday, April 07, 1999 12:24 AM
To: Oglesby, Curtis D.
Cc: Pavliscsak, James V.; Arthur, John P.; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: CPR / Electrical Safety Training

Importance: High

Curt,

With our routine contact with electrical equipment circuits and wiring, I am concerned that UMCS employees are not trained in CPR and other electrical safety techniques. I am told Johnson Controls employees get this training twice a year.

Would it be possible for us to attend their training, or should I contact Occupational Health to see if they sponsor this training?

Rick Rusek
UMCS Operations
Ph: (706) 791-6423
DSN: 780-6423

P31

Fullbright, Reuben R.
From: Rusek, Richard D.
Sent: Saturday, June 17, 2000 9:15 AM
To: Fullbright, Reuben R.; Reed, Brenda L.
Subject: My Training Folder

Training

CPR Training

Training on the Web

Delivered: High Voltage Electr...

FW: CPR Training / First Aid T...

FW: CPR Training / First Aid T...

FW: CPR Training / First Aid T...

CPR Training / First Aid Train...

COR MENTOR COURSE

Training - Fiber Optic Trainin...

Read: EMD Factory Training

EMD Factory Training

Gas & Electric Meters for Ener...

BACnet Training

Request for Training (Update)

Re: TRAINING NOTE

These are training requests/information I had kept. Use them as you see necessary.

Rick Rusek
UMCS Operations
Ph: (706) 791-6423
DSN: 780-6423

p 32

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Sunday, November 29, 1998 11:41 AM
To: Pavliscsak, James V.
Cc: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: Training - Instrumentation & Process Control

Recommend sending Mr. Rusek and Mr. Fullbright to subject training, 23-25 February 1999 in Atlanta, GA. Training is conducted by National Technology Transfer, Inc.

Seminar fee not including lodging is $985.00 per person.

Training includes:

- How to troubleshoot process controls
- How the various instruments measure
  - temperature
  - pressure
  - flow
  - level
  - pH
  - weight
- What are the differences between open and closed loop control.
- What are the essential components of closed loop control, how to calibrate and troubleshoot them.
- Check out of controller operation, transducer and final element operation and system operation.
- What are Proportional, PI, and PID control strategies.
- What causes errors in instruments and how to troubleshoot them.
- How to calibrate electronic and pneumatic controllers.

Seminar Outline and further information is available in pamphlet form if you wish to review it.

To register: call 1-800-922-2820

For further information contact: Alex Black at 1-800-922-2820.

Note: This seminar is available on an in-house basis. Presented at the customer site, this presentation offers the advantage of being tailored to the requirements of the individual customer and may result in a cost savings of as much as 50%, depending on the number of students trained.

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P33

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Wednesday, December 02, 1998 12:55 PM
To: Oglesby, Curtis D.
Cc: Pavliscsak, James V.; Arthur, John P.; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: Seminar - Management Skills

Curt,

As after-hours DPW Staff Duty Officer, in responding to Service Calls, and in dealing with customers concerning building environment, UMCS personnel must be able to communicate effectively and calmly. Below is information on a seminar in Augusta which will benefit all UMCS (and many DPW) personnel.

CAREERTRACK Evening Workshop - MANAGEMENT SKILLS for Secretaries, Administrative Assistants & Other Office Personnel is being offered February 2, 1999 from 8:15 AM - 4:00 PM at the Radisson Riverfront Hotel, 10th Street.

Request that Mr. Combs and Mr. Poston, day shift operators (Mr. Rusek is also scheduled on days and, although he would like to attend, will remain behind to handle shift responsibilities), and Mr. Pavliscsak attend at a minimum. If feasible, recommend bringing other UMCS personnel in on overtime to attend this training.

The seminar presents the following:

- Project Management
- Office Politics
- Making Decisions
- Communicating clearly and persuasively
- Dealing with difficult people
- Coping with change

Workshop Content:
- Planning, scheduling and setting priorities
- Professionalism and office politics
- Working without supervision
- Surviving in the trenches

Cost is $149/person ($129/person 5 or more attendees). To register, phone (800) 334-6780.

This course also makes an ideal on-site preparation. To learn more about bringing this program - or any of 200 other on-site presentations by **CAREERTRACK** - to our organization, simply phone (800) 325-5854 for a no-obligation consultation.

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P 34

Reed, Brenda L.

From:	Rusek, Richard D.
Sent:	Tuesday, February 08, 2000 8:01 PM
To:	Pavliscsak, James V.
Cc:	Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject:	High Voltage Electrical Safety Training
Importance:	High

Recommend sending following DPW personnel to subject training prior to commencement of power plant operations:

Mr. Combs
Mr. Fullbright
Mr. Ellis
Mr. Griffin
Mr. Poston
Ms. Reed
Mr. Rusek
Mr. Skvarca
Mr. Pavliscsak
Mr. Stubblefield

Below are some highlights from sub-section (a) of 29 CFR 1910.269:

Note: For the purposes of this section, a person must have this training in order to be considered a qualified person.

(a)(2)(iii)
The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices required by this section.

(a)(2)(vii)
The employer shall certify that each employee has received the training required by paragraph (a)(2) of this section. This certification shall be made when the employee demonstrates proficiency in the work practices involved and shall be maintained for the duration of the employee's employment.
Note: Employment records that indicate that an employee has received the required training are an acceptable means of meeting this requirement.

Training conducted by National Technology Transfer, Inc., is available on the following dates at the location provided:

March 27-28	Orlando, FL
April 10-11	Atlanta, GA
April 12-13	Birmingham, AL

Seminar fee not including lodging is $695.00 per person.

IN-HOUSE presentations conducted at Fort Gordon may be available in lieu of separate individual training at a remote site.

Training satisfies OSHA REQUIREMENT 29 CFR 1910.269 for Electric Power Generation, Transmission, and Distribution.

Training includes:

- What your responsibilities are according to OSHA
- How to define a "qualified" person

P 35

- How to conduct required inspections
- What a periodic inspection means
- Concepts of Minimum Approach Distance and FR clothing
- How to accomplish EPZ grounding
- The simplest, most effective way to create a safe work environment
- The ultimate key to avoiding accidents

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P36

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Sunday, November 29, 1998 2:40 PM
To: Brown, Iris V.
Cc: Pavliscsak, James V.; Hood, Threesa K.
Subject: CSS Training

Ms. Brown,

1. Utilities Monitoring and Control System Personnel can benefit from some courses provided by the Computer Science School; however, the latest course description I have available is for FY 98. As section Training Coordinator, I am trying to set up quotas for the following courses (Note: Course numbers may not be accurate since they are from the FY 98 training schedule):

Title: Local Area Networks - Concepts and Configuration
Course Number: 7E-F46/150-F18

Title: Local Area Network Administration and Management
Course Number: 7E-F54/150-F25

Title: New Technology
Course Number: 7E-F41

Title: Webmaster Course
Course Number: 7E-F57/531-F12

Title: Network Manager (IP Networks)
Course Number: 7E-F58/531-F13

Title: Systems Administration COE NT
Course Number: 7E-F60/531-F15

Title: Systems Administrator Security Course
Course Number: 113-TBD-01 (temporary)

Title: Network Manager Security Course
Course Number: 113-TBD-02 (temporary)

2. The DPW Utilities Monitoring and Control Systems section operates an NT based network to be interconnected through routers and hubs to equipment in approximately 160 post facilities.

3. Requested training will be for Mr. Pavliscsak, Systems Manager, as well as for those employees selected by him to attend.

4. This e-mail is addressed to you as the point of contact I was provided when attempting to set up the training last year. If you are not the correct point of contact, could you please steer me in the right direction?

Thank you,

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P 37

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Wednesday, December 02, 1998 12:55 PM
To: Oglesby, Curtis D.
Cc: Pavliscsak, James V.; Arthur, John P.; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: Seminar - Management Skills

Curt,

As after-hours DPW Staff Duty Officer, in responding to Service Calls, and in dealing with customers concerning building environment, UMCS personnel must be able to communicate effectively and calmly. Below is information on a seminar in Augusta which will benefit all UMCS (and many DPW) personnel.

CAREERTRACK Evening Workshop - MANAGEMENT SKILLS for Secretaries, Administrative Assistants & Other Office Personnel is being offered February 2, 1999 from 8:15 AM - 4:00 PM at the Radisson Riverfront Hotel, 10th Street.

Request that Mr. Combs and Mr. Poston, day shift operators (Mr. Rusek is also scheduled on days and, although he would like to attend, will remain behind to handle shift responsibilities), and Mr. Pavliscsak attend at a minimum. If feasible, recommend bringing other UMCS personnel in on overtime to attend this training.

The seminar presents the following:

- Project Management
- Office Politics
- Making Decisions
- Communicating clearly and persuasively
- Dealing with difficult people
- Coping with change

Workshop Content:
- Planning, scheduling and setting priorities
- Professionalism and office politics
- Working without supervision
- Surviving in the trenches

Cost is $149/person ($129/person 5 or more attendees). To register, phone (800) 334-6780.

This course also makes an ideal on-site preparation. To learn more about bringing this program - or any of 200 other on-site presentations by **CAREERTRACK** - to our organization, simply phone (800) 325-5854 for a no-obligation consultation.

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P38

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Sunday, November 29, 1998 11:51 AM
To: Pavliscsak, James V.
Cc: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: Training - Basics of Industrial Electricity

Recommend sending Ms. Reed and Mr. Ellis to Training 5-7 January 1999 in Atlanta, GA . Cost of seminar not including lodging is $985.00 per person.

Training is conducted by National Technology Transfer, Inc. and will provide the following instruction:

- Electrical Theory in Simple Terms
- Ohm's and Kirchoff's Laws
- Electrical Circuits, Series, Parallel and Series-Parallel
- Electrical Properties, Conductors, Insulators & Semiconductors
- Alternating and Direct Current
- Single and Three Phase Voltages
- Electrical Terminology
- Effective Use of the Multimeter
- What Those Measurements Really Mean
- Electrical Safety
- Work on Live Electrical Circuits Safely
- Transformer Operation
- Motor Operation, AC and DC
- Generator Action and Principles
- Troubleshooting Electrical Circuits
- Effect of Resistance
- Relay Operation
- Diodes and Rectifiers
- Measure Current Safely
- Harmonics

Seminar Outline is available if you want to review it.

To register call: 1-800-922-2820.
For further information contact: Alex Black, 1-800-922-2820.

Note: This seminar is available on an in-house basis. Presented at the customer site, this presentation offers the advantage of being tailored to the requirements of the individual customer and may result in a cost savings of as much as 50%, depending on the number of students trained.

Rick Rusek
UMCS Operations
Ft. Gordon, GA
DSN: 780.6423
Comm: 706.791.6423

P 39

Fullbright, Reuben R.
From: Griffin, Gordon D.
Sent: Sunday, June 04, 2000 3:27 PM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Oglesby, Curtis D.
Subject: POWER PLANT SAFETY

Mr. Pavliscsak,

After careful thinking over what you said today I feel I should give you a reply.

You said it was perfectly safe to go to the power plant alone and that we had all done it in the past. You are right we have, but at the time we did not know the OSHA regulations nor had we had a safety class. Also in the past I have made the statement that I was concerned that someone was going to get injured because my coworkers and I have not had any training in medium voltage equipment and how to work around it and with it. Yes we had a two day class from ESI and I think was a very informative class but it just varied my suspicions that we are rolling the dice and hoping it doesn't come up snakeyes

It was recommended that under no circumstances that a single person should go into the plant area by them selves. We should observe the 2 person rule any time you were inside the fenced in area. Made no difference if power was on the over head line or not. You said Mr. Bachlor told you "that he did not say that", it is strange that two separate classes of 4 people each heard the same thing. You also said that it was not against OSHA and that it was not considered high voltage you are right it is considered medium voltage . The last time I checked 4160 and 13,700 is not low voltage. I have read numerous parts of the OSHA regulations and there are a lot of regulations we are not following. I can not practice unsafe habits where it affects my life or one of my co-workers.

P40

Fullbright, Reuben R.
From: Griffin, Gordon D.
Sent: Tuesday, February 23, 1999 7:06 AM
To: Pavliscsak, James V.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: RE: Dead Bus Relays

I HAVE NO IDEA OF WHAT YOU ARE ASKING ABOUT I AM NOT TRAINED IN HIGH VOLTAGE CONTROLS

-----Original Message-----
From: Pavliscsak, James V.
Sent: Friday, February 19, 1999 10:08 AM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: FW: Dead Bus Relays

Can anyone tell me if both units can be started dead load at the same time?

.....
From: Stubblefield, Glenn Jr
Sent: Friday, 19 February, 1999 10:02 AM
To: 'Hunter, Mike'
Cc: Oglesby, Curtis D.; 'Oglesby, Curtis (CRIS)'; 'Wise, Billy'; Pavliscsak, James V.
Subject: Dead Bus Relays

Mike,

Are there dead bus relays or suitable controls installed to allow the generating units to operate in parallel without synchronizing to the local utility?

The concern is that the units will hunt and potentially disconnect if the local utility isn't available for synching. In the past, we have operated just one unit (4.5Meg) on our emergency bus. In the event we have to operate more than on unit in the absence of local utility power, this synching concern will exist. I understand that Billy Wise has been trying to contact you to discuss this issue. Thanks.

Glenn Stubblefield Jr. Phone: 791-6184
Energy Engineer DSN 780-6184
DPW, Public Works Division Fax: (706) 791-4222
Facilities Engineering Branch Pager: (706) 667-3688
Fort Gordon, GA 30905-5040 15th Street, Bldg 14600

P41

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Thursday, June 04, 1998 6:41 PM
To: Oglesby, Curtis D.
Cc: Pavliscsak, James V.; Poston, Charles F.; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: FW: Power Plant

Curt-

I concur fully with Brenda's concerns.

We are operating a lot of large, heavy machinery without any real effort at maintenance. No one in the crew has had any training on the maintenance of military EMD power plants and the vast majority of problems that are developing are well above operator maintenance levels.

We have already replaced a governor without performing the necessary calibration checks as required by the manufacturer. We haven't the training or the test equipment to do this. Other attempts at maintenance have been made, more or less successfully, based on the knowledge of operators gained by working on other types of equipment. This has entailed the use of nonstandard (that is non-MIL spec) parts and may reflect adversely on whatever agreement we are holding these power plants under.

The concept of maintenance by Johnson Controls World Services, Inc. appears to be a non-starter. While Tommy has proved very helpful on the infrequent occasions we have been able to get his services, there is apparently no mechanism in place to define JCWSI maintenance responsibilities or to provide ongoing (PM) maintenance. There have been arguments over what work is "in the contract" or whether it is "paid for".

Heavy machinery requires heavy maintenance.

That maintenance can be provided in a timely fashion, on PM schedules and as SO's immediately upon identification of the problem, or the equipment can be run into the ground, jack-legged to operate with non-standard parts, and generally ignored till it dies.

If the full value of operating AND MAINTAINING the equipment is not being recouped by operating it, the program won't work economically.

If the full value IS being realized, the money should be invested in keeping the equipment on line and functioning properly.

The point should be made that this program isn't about a feather in anybody's cap, or allowing the diversion of big bucks that would have been needed to buy electricity to the construction of edifices and showplaces. It has merit on its own as a conservation effort and should be supported for that reason alone. Any additional career-path benefits accruing to anyone are just icing on their particular cake.

I think the program is worth pursuing aggressively, both to save expense to the government for electricity and to set an example to the rest of the electricity consuming public of energy conservation.

Any enlightenment you can give us about any of these concerns would be greatly appreciated.

Charlie

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Thursday, October 08, 1998 4:11 PM
To: Pavliscsak, James V.
Cc: Oglesby, Curtis D.; Stubblefield, Glenn Jr; Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: FW: Repair list for generators

James-

There are a lot of very valid points raised here. I concur with Reuben's assessment of our (UMCS's) view of the way things get handled here- pile it un UMCS, but restrict what they have to work with while requireing that they be responsible for even more work. I think we are approaching critical mass on this matter and should address it in a positive manner before it becomes a negative influence on the work effort.

Charlie

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, October 08, 1998 3:08 PM
To: Poston, Charles F.; Pavliscsak, James V.; Reed, Brenda L.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Rusek, Richard D.; Ellis, William E. Jr
Cc: Oglesby, Curtis D.; Fullbright, Reuben R.; Stubblefield, Glenn Jr
Subject: RE: Repair list for generators

Here is the list of work needed on generators again.
1. Pre-filters on all units need to be replaced.
2. Turbo charger seals and gaskets on several units leaking down on main shafts to generator.
3. Coolant leaks on several units at low water cut-off switches.
4. Oil leaks on all engines, e.g. coffin covers, coffin cover bases, many gaskets, seals and lines at cam gear end of engines and inspection holes(hand holes).
5. Exhaust dampers/baffles not working correctly.
6. Exhaust leaks on 3 units now, all should be replaced.
7. Unit 2-3 still has knocking noise coming from bottom end of engine.
8. Turbo charger on unit 2-1 making loud grinding noise. (Believe problem caused by T/C running out of balance due to exhaust leaks for so long)
9. Need to install truly matched belts on fan shafts. Belts which were put on were not matched leading to excess slap and belts jumping off.
10. Need to clean and/or replace sight glasses on radiators.
11. Need to clean out oil coolers and flush.
12. Need to clean out, flush and inspect oil/water heating units.
13. Injectors need to be cleaned and bench checked to insure proper operation. This will cut down on excess smoking.
14. Operation units need to be checked out and calibrated to stop problem with voltage/kvar bouncing. From talking to depot, voltage regulator needs to be replaced. This is depot level repair work!
15. Contacts on all breakers need to be replaced.
16. Arc shields need to be replaced.
17. Micro switch on breaker I taped together over a year ago should be replaced.
18. There need to be a return line run back to plant fuel tank to slow down fuel spills.
19. As requested before original start up, we need concrete pad for entire area with curbing and oil separator so we have something solid to work on and can wash units.
20. As requested before original start up, we still need a roof-over covering entire area since temperature exceeded 110 degrees in vans this summer with A/C running all out. This will also help in inclement weather.

21. All gauges and safeties need to be checked and calibrated.

If all above items are taken care of and a through calibration during yearly inspection, and repairs are made to units during inspection instead of just identifying problems, we should be in better shape for next year.

That takes care of the list you asked for,

Of the items listed above, I know 90% have been turned in to you 4 times, work orders have been done, and we have talked to you and Curt several times about problems with no results being accomplished. You call it complaining,, thin skinned,,whining and others. We are out there working under extreme conditions with equipment that is dangerous when in good shape and deadly in the shape it is getting in.

Safety said they read 15PPM CO and 140 degree temperatures, we had already taken readings which could not be read because the CO meter pegged out and the thermometer I installed only went up to 250 degrees which was pegged out prior to melting down. Charlie was on site when they took readings and stated units had been shut down for 20 minutes before being taken.

I/we feel we are being abused since we see no results from what we are saying or work orders we are turning in. We are being told to go out and make repairs on units even though no one in EMCS has had any training which we have requested several times.

We at EMCS seem to get all the problems no one else wants; Emergency service orders, if Johnson Controls can't or doesn't take care of a building just give it to EMCS to handle the problem, we spend weeks and sometimes months doing design work for the engineering section only to have our work left out of contracts, when we review designs it becomes apparent they aren't even looking at buildings they are doing work in, we are often sent out to do COR staff work and have to write reports on buildings we check, we just seem to get a lot of work that is not ours.

For years we heard the reason for having the contract on the system was because the contractor could get parts for the system on a days notice. Lately it has taken days or even weeks for us to get parts orders out of this office due to having to call vendors, get prices, part number, if they deliver, tax information etc.. Now we are going to have to handle parts for the contractor without any increase in people to do the job. For over the past year I have heard several operators complain to you about work being done by contractor, answers received ranged from "They know what they are doing", "Don't rock the boat", and "We all have to get along". This summer when we had to run generators, you got a chance to see what everyone had been telling you about improper calibration. Instead of deducting from contract payment, you tell us to give them a service order for each point.

On points which are and have been failed for years although under contract which we were paying for are being dropped from the new contract without being repaired. Also while on contract problems, all of us know how often they pull good devices out of buildings, now we have to do check-out to determine if a device is bad. Most items need just calibration which will need to be done to determine if the device is really bad. Who is going to do this?

This is just a partial list of complaints, others will follow as we get closer to our big move I am sure.

-----Original Message-----
From: Poston, Charles F.
Sent: Tuesday, September 29, 1998 5:21 PM
To: Pavliscsak, James V.
Cc: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: RE: Repair list for generators

James-

1. Replace exhaust header gaskets, all 6 units (those not blown now, will be soon)

2. Recal voltage regulators, all units

3. Replace coffin cover gaskets, all 6 units

4. Raise the fuel lines and SOV's at unit 1-2 and 2-2 above ground

5. Get the switchyard panels working, especially the kV meter.
   a. move the PT primary taps up to read the overhead line, not unit 2
   b. add another kV meter to read the Emergency Bus
   c. get the synchroscope to compare the overhead line and the Emergency Bus

6. Pave the lot, with oil/water separator feeding to the sanitary sewer

7. Add a shed, with spill containment, for waste barrels

8. Change disposable air filters

-----Original Message-----
From: Pavliscsak, James V.
Sent: Tuesday, September 29, 1998 3:12 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Repair list for generators

I've asked for a list of required repairs to be accomplished during the winter. I've received nothing from any of you. Stop complaining and get me a list. I want a response from each of you.

P 45

Fullbright, Reuben R.
From: Skvarca, Neal M.
Sent: Tuesday, February 24, 1998 6:32 PM
To: Oglesby, Curtis D.; Pavliscsak, James V.
Cc: 'NEAL'; Fullbright, Reuben R.
Subject: Mechanical work being performed on Generators

This my reply to your E-mail concerning the replacement of fuel valve on one of the generators. On Friday we were enduring bad weather.

1. We do not have foul weather gear to work in the rain.
2. When wet the generators can be quite treacherous do to oil residues.
3. I was informed that Brenda was going to install valve.

On Saturday and Sunday this office has been tasked to take ESO's for JCWS. This starts at 1700 which does not allow a lot of time for two people to work on generators. It seemed logical for the operators who were on days this weekend to have installed valve. They were not burdened with ESO's or darkness. Also if we are going to do this type work we should be supplied with coveralls and some type of maintenance training on generators. By having that the valve you purchased install a MWO should have been requested from the Generator owner.

Neal M. Skvarca
DPW UMCS
(706)791-6423

Fullbright, Reuben R. P46

From: Fullbright, Reuben R.
Sent: Tuesday, February 24, 1998 10:06 PM
To: Pavliscsak, James V.; Oglesby, Curtis D.
Subject: reply to question

Here is the answer you requested as to why the fuel valve was not put in by myself.

When you handed me the valve Friday afternoon at 15:30 and said "Here is the valve", I immediately handed it to Brenda and told her to go put it in. You were still standing there and made no comment to the contrary. I felt this necessary due to the fact that Brenda is scared of the generators due to lack of knowledge. When Rick commented on not having knowledge of generators the answer was to send operators to the site on a daily basis so we could get used to them.

I spent most of the last 2 weeks of day shift working on the generators while the Prime Power team was here, working on the same generator with the fuel leak, which has been down since last summer and then red tagged by the team when they left, so I saw no great rush to replace valve.

The reason for picking Brenda is, lately every time something has to be done at the generators she says it is not her job. She may be right so now I need clarification as to who does what. We need to how work at generators is to be assigned. I for one do not mind the work, but if it is not part of our job description as Brenda claims, then if I am going to be required to do the work other operators are not expected to do, I would like to have the proper training and be thus compensated for the extra duties.

While on the subject of the generators I was written up the other day for not filling out the log sheets. When Doug and I were up there to try to get units on line, I saw no reason to make special notes since everything I found showed up from doing the pre-startup checkout as given to all operators when the generators were put in. If the operators that wrote the note had followed written procedure, they would have identified and corrected the same problems. So are we to write down each move we make in the new log books, if so it will take a much longer time to put generators on line.

To clear up later problems, provide the following in writing:
1. Who does what at generators? When installed UMCS was to check fluids and operate only.
2. If we are to work on generators, why can't we get any training?
3. What are we to enter into log books some people want to write books when one liners will do if we all know what is going on.
4. Since we started operating the generators, operating procedures have changed so much they are hard to follow, please provide operating SOP for us to follow.

ENCLOSURE TWO

P 47

Fullbright, Reuben R.
From: Griffin, Gordon D.
Sent: Friday, October 06, 2000 8:27 AM
To: Pavliscsak, James V.
Cc: Griffin, Gordon D.
Subject: Job Description

I am replying as requested but this job discription still need more in-depth studding so it will be done correctly to encompass all that is being done by UMCS personal

I have a question concerning our job discription , the one on file that CPO brought up does not match the one we had during our mid term job discription

Job Description

On file job discription it has 4805 Med Equip Repair , this one has 5415 Air condition equip. operator
Under Job Description 5407 needs statement about being a 4.5 Mw Power Plant Operator

SUPERVISORY CONTROLS

MAJOR DUTIES

b. Operates Load Shed Generators
Change to Operates multiple 4.5 Mw power plants That run in parallel with a commercial power company and are available for Emergency power supply.

Need to add in that we review print on jobs that are going out and make suggestions and corrections

Lay out and install UMCS Ethernet network, modify and up date the installation as needed

Operates a motor vehicle statement needs to be updated

SKILLS AND KNOWLEDGE

Need to be skilled in troubleshooting on Electrical Generating Power Plant

There needs to be a statement about Troubleshooting and checking out Ethernet networks

WORKING CONDITIONS

Need to add in at the Power Plant , working around high voltage ,high noise ,extreme heat, And exposed to engine oil, diesel fuel
antifreeze .

TRAINING SUPERVISORY CONTROLS

All personal need to go to the government sponsored EMCS/UMCS schools

Need training on setting up and maintaining a operational Ethernet Network

In-depth training on fiberoptic multimode / singlemode systems

Using cat5 ,cat8 cable and what should be used for what type of installation

TRAINING MAJOR DUTIES

Real Traning on EMD troubleshooting and Maintenance

Safety training for working around high voltage

Everyone trained and certified in CPR and basic First Aid

Training yearly on haziest waist handling to keep up with law changes

TRAINING WORKING CONDITIONS

There needs to be training on what will happen if you get certain chemicals on you.

Drills on how to get out and get them off of you and other personal.

IH&POST SAFETY

P1

Bennett, Frank D.

From: Pruiett, George S EAMC [George.Pruiett@se.amedd.army.mil]
Sent: Monday, June 10, 2002 1:35 PM
To: 'Bennett, Frank D.'
Cc: Pruiett, George S EAMC; Gregory Mims; Jordan, William R EAMC
Subject: RE: Test Message for Gen Plant Ops

RE: Personal Protective Equipment (PPE) Training, UMCS Personnel, Fort Gordon, GA

Mr. Bennett, I've completed a review of Industrial Hygiene (IH) workplace health hazards data on file a this office and did not find PPE training records before Nov 2000. IH files did indicate that UMCS personnel were being provided safety shoes, ear muffs/plugs, safety glasses, coveralls, and were enrolled in local Occupational Health Medical Surveillance Program. Program includes requiring personnel to view a training video on the use of hearing protection, annual audiogram, and fit testing of ear plugs. On/about March 1997 IH initiated a PPE Training Certification program on PPE to document compliance with OSHA PPE standard. The program used a sign-In sheet and training video on PPE. Mr. Pavliscsak was one of the first supervisors on Fort Gordon, GA to training his personnel using this method. I personally signed-out the video to Mr. Pavliscsak but did not find a copy of the document on file in IH. Thanks, George S. Pruiett, Industrial Hygiene Program Manager, EAMC.

-----Original Message-----
From: Bennett, Frank D. [mailto:bennettf@gordon.army.mil]
Sent: Wednesday, June 05, 2002 9:02 AM
To: Jordan, William R EAMC; 'bennettf@gordon.army.mil'
Cc: Pruiett, George S EAMC; Gregory Mims
Subject: RE: Test Message for Gen Plant Ops
Importance: High

Mr.Jordan,
I am with the Internal Review Office on post and have been working on a request from the Office of Special Counsel (OSC) concerning safety allegations made by former UMCS personnel at the installation power generation plant.

OSC has requested us to determine if Personal Protective Equipment (PPE) training was conducted prior to NOV 2000. Mr. Pavliscsak, the former supervisor of UMCS, told me that he thought your operation had provided the training but was not sure when.

If the training was conducted, I need to know When (how many times), Who attended, and What it Covered. I will need whatever documentation you have to support that the training was conducted for support to the response to OSC.

We have a very limited time for responding to OSC so your prompt assistance with this is greatly appreciated. If you have any question, please let me know.

Thanks,
Frank Bennett
Auditor
Internal Review Office
791-2923/2972

-----Original Message-----

P2

From: Jordan, William R EAMC [mailto:William.Jordan@se.amedd.army.mil]
Sent: Wednesday, June 05, 2002 8:05 AM
To: 'bennettf@gordon.army.mil'
Cc: Pruiett, George S EAMC
Subject: Test Message for Gen Plant Ops

Please send me and/ or Mr Pruiett a message on how we can be of assistance in the training records at the BLDG 14600 Generator Site area.

- Copy - -file- p3

hor: George Pruiett at medcen10_eamc
e: 8/14/98 1:26 PM
ority: Normal
: pavliscj@emh1.gordon.army.mil at Internet-Mail
CC: blandinr@emh.gordon.army.mil at Internet-Mail
CC: LTC Eric Doane at MEDCEN2_EAMC
CC: Pablo Nogueras
CC: Arthalia Robertson-Lang
Subject: Results of Industrial Hygiene (IH) Survey, Post Power Plant
---------- Message Contents ----------

1. Mr. Pavliscsak (Jerry), in support of subject survey request from Post Safety (Mr. Blandin) and Fire Department (Chief, Mason) via concerned Power Plant employees, IH completed subject survey on 13 Aug 98. Personnel were concerned about workplace health/safety issues (diesel exhaust vapors to include carbon monoxide (CO), extreme temperatures when working on diesel generators, and noise).

2. Findings:

a. Post Power Plant is comprised of six diesel powered 1500 KW General Motors - Electromotive Division generators. These units supplement/complement Fort Gordons' electrical power requirements in coordination with Georgia Power utility company.

b. Power plant personnel were found to be exposed to uncontrolled CO vapors. Monitoring indicated CO levels up to 15 parts per million (PPM). Regulatory standards (ACGIH & OSHA) 35-50 PPM respectively, averaged over an eight hour work day. Damaged exhaust manifold gaskets on generator # 63442FP (unit located at East end of power plant) was source of health hazard.

c. Power plant personnel were also exposed to extreme heat/temperatures as a result of damaged manifold gaskets in (b) above. Excessive amounts of soot was evident on the interior wall surfaces of this unit. Ambient temperature inside this generator reached 104 degrees during the mid morning hours.

d. Noise measurements confirmed that the Power Plant area is "noise hazardous" (noise exposure of 85 decibels (d(B)A) or greater). Inside the generator compartments the noise levels ranges from 102-110 d(B)A. Personnel did have and use ear muff and/or plugs. Background noise levels at the entry to Power Plant were 85 d(B)A and greater. The entire enclosed (fenced) Power Plant area is classified as a "noise hazardous area" based on results of noise survey. The requires the mandatory use of hearing protection and posting of noise hazardous warning sings.

e. Power plant personnel are frequently exposed to generator hot metal surfaces and motor oil. This results from motor oil leaks from the generators value cover gaskets and absorbent paper towels are used to clean up the leaking oil (minimize environmental contamination).

3. Recommendations:

a. Procure and post "noise hazard/hearing protection required" warning signs for perimeter fence (all sides) of Power Plant.

b. Procure replacement "cushions" for ear muffs in use at subject location. Require Power Plant personnel to use a combination of "ear muffs and plugs" when working around diesel generators at subject location.

c. Coordinate with Occupational Health (OH) personnel at EAMC (787-5306) to ensure that all DA personnel working at subject location are properly fitted with ear plugs as supplemental hearing protection. Baseline hearing test may be required if not document in DA personnel medical records.

d. Repair/replace damaged exhaust gaskets on generator noted in findings section.

4. Point of contact is George S. Pruiett, Industrial Hygienist at 787-1214.

George S Pruiett

Industrial Hygiene Section
Community Medicine Service

P5

NOISE SURVEY
(Sound Level Meter Survey)

DATE (Year Month Day): 9 8 04 13

TYPE SURVEY: [1] 1–INITIAL SURVEY 2–RE–SURVEY 3–OTHER

SOUND LEVEL METER	MICROPHONE	CALIBRATOR
MANUFACTURER: Quest	MANUFACTURER: Quest	MANUFACTURER: Quest
MODEL: ~~H-38~~ 1800	SERIAL NO: HU61 10028	MODEL:	SERIAL NO:	MODEL: CA-12B	SERIAL NO:
LAST ELECTROACOUSTIC CALIB DATE: year 9 7 month 0 2 day 2 6	LAST ELECTROACOUSTIC CALIB DATE: year month day	LAST ELECTROACOUSTIC CALIB DATE: year month day

WIND SCREEN: ☐ USED ☒ NOT USED — MEASUREMENTS OBTAINED: ☐ INDOORS ☐ OUTDOORS

DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*: Electrical Power Generators (Diesel) 9th Avenue

PRIMARY SOURCE OF NOISE: Diesel Engines

SECONDARY SOURCE OF NOISE:

SOUND LEVEL DATA — PROTECTION REQUIRED (re: dBA Level)

LOCATION	METER ACTION	dBC	dBA	RISK ASSESSMENT CODE	NONE less than 85	PLUG OR MUFF 85–108	PLUG AND MUFF 108–118	PLUG + MUFF + TIME LIMIT greater than 118
#63502 (idle)						107		
#63502 (idle)						106		
~~#63430FP (Idle)~~ #63421FP (idle)						(102) 103		
#63442FP (Idle)						102		
#63442FP (Idle)						102		
#63421FP (Full load						110		

NOTES: *Range of levels noted by /; i.e., 102/109. At operator work stations, measure at ear level.*
METER ACTION: Enter F for fast meter action and S for slow meter action.

REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*: Temp Varied from 99 to 104°F Electromotive Division of GM
model 16-567-E4
serial 66-51-1054
Lagrange Illinois
1500 hp each

MORE DETAILED NOISE EVALUATION REQUIRED: ☐ YES ☐ NO *(If "YES", identify type evaluation needed.)*

NAME(S) OF PERSONS IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*: Mr.

NAME, PHONE NO. AND ORGANIZATION OF SUPERVISOR OF NOISE–HAZARDOUS AREA OR OPERATION: Mr. Jerry Palusak DPW 791-6423

SURVEY PERFORMED BY *(Last Name, First Name, MI)*: Summers, J E & G. S. Pruiett

HEARING CONSERVATION MONITOR *(Last Name, First Name, MI)*: CPT Liffle

DD FORM 1 SEP 79 2214

- Copy -

P6

Pruiett, George S EAMC

To: Pavliscsak, James V.; Pruiett, George S EAMC; Blandin, Russell S.; Jordan, William R EAMC

ject: RE: Risk Assessment

Date: 8 Aug 00

1. Mr. Pavlicsack, I completed a risk assessment on 7 Aug 00 in reference to Ms. Reed's work environment concern (EMS Generator personnel exposure to ambient heat without adequate environmental control). Based on three separate worksite visit to the diesel powered generators worksite to include the 7 Aug 00 heat assessment, there appears to be no change in the tasks personnel perform:

a. The work tasks do expose personnel to ambient heat that is in excess of 95 degrees F.

b. Every hour on the hour EMS personnel perform a series a checks on the diesel generators which last approximately five minutes per generator.

c. Currently only six generators are operated at a given time with the potential to operate nine in the future.

d. The work tasks are consider moderate and do not require excessive physical exertion on the part of the operators. When personnel are not performing checks on the generators, three air conditioned areas (Tool/Storage Building and two van) are immediately accessible to them away from the excessive ambient heat. The temperature in the Tool/Storage building averaged 73F and in Van # 60183 it was 81F (it appeared that the ventilation system had been recently turned on). The air conditioner in the second Van was not operating due to a maintenance problem. A work order to fix/repair unit had been initiated according Mr. Pavliscsak.

e. Water was available to EMS personnel.

onclusion. Controlled relief form ambient heat is available and adequate if air conditioning system/unit are ained. Recommend you set the air conditioners at the generator area to operate on demand via thermostat.

Additionally, the use of appropriate personal protective equipment (chemical splash goggle and tyvex coveralls) for the battery maintenance (replenishing & filling batteries with water)tasks is a concern for EMS personnel. Recommend the purchase and use of chemical splash goggles and aprons for this task. Due to the excessive ambient heat, the use of Tyvex coveralls is not recommended. They may increase body heat load.

4. POC is George S. Pruiett - Industrial Hygienist at 787-1214.

-----Original Message-----
From: Pavliscsak, James V. [mailto:pavliscj@gordon.army.mil]
Sent: Tuesday, August 01, 2000 7:56 AM
To: 'Pruiett, George S EAMC'; Blandin, Russell S.; Jordan, William R EAMC
Subject: RE: Risk Assessment

The forecast for this week looks good. It appears we will not run. If we do run I will contact you as planned.

> -----Original Message-----
> From:Pruiett, George S EAMC [SMTP:George.Pruiett@se.amedd.army.mil]
> Sent: Friday, 28 July, 2000 2:58 PM
> To: Pruiett, George S EAMC; Blandin, Russell S.; Jordan, William R EAMC
> Cc: Pavliscsak, James V.
> ect: RE: Risk Assesment

: 28 Jul 00

P7

> Coordinated the evaluation of EMS/Generator site for indoor heat concerns
> identified by Ms. Reed. Due to the fact the generators are not ran on a
> regular schedule, Mr. Pavlisack will page me (Mr. Pruiett) by dialing
> "30122" or Mr. Jordan at "30314" on the day(s) of next generator run (Run
> mes are controlled by GA Power). George Pruiett @ 787-1214.

> ----Original Message----
> From: Pruiett, George S EAMC
> Sent: Monday, July 17, 2000 11:21 AM
> To: 'Blandin, Russell S.'; Pruiett, George S EAMC; Jordan, William R
> EAMC
> Cc: James Pavlisack (E-mail)
> Subject: RE: Risk Assesment
>
>
> A copy of this request is being provided to Ms. Reed's supervisor (Mr.
> Pavlisack) to alert him to his employee's concern. Please advise Ms. Reed
> that the Industrial Hygiene (IH) Section will coordinate a worksite
> evaluation to address noted concern. We will review the potential
> health/safety risk. Concerns such as "over time and duration of work
> shifts" must be addressed via the supervisor with guidance from MER (CPO)
> and Local Union if applicable. Thanks, George S. Pruiett - Industrial
> Hygienist at 787-1214.
> ----Original Message----
> From: Blandin, Russell S. [mailto:blandinr@gordon.army.mil]
> Sent: Monday, July 17, 2000 10:48 AM
> To: George Pruiett; William Jordan
> Subject: FW: Risk Assesment
>
>

orge/William: FYI and assistance

nks,

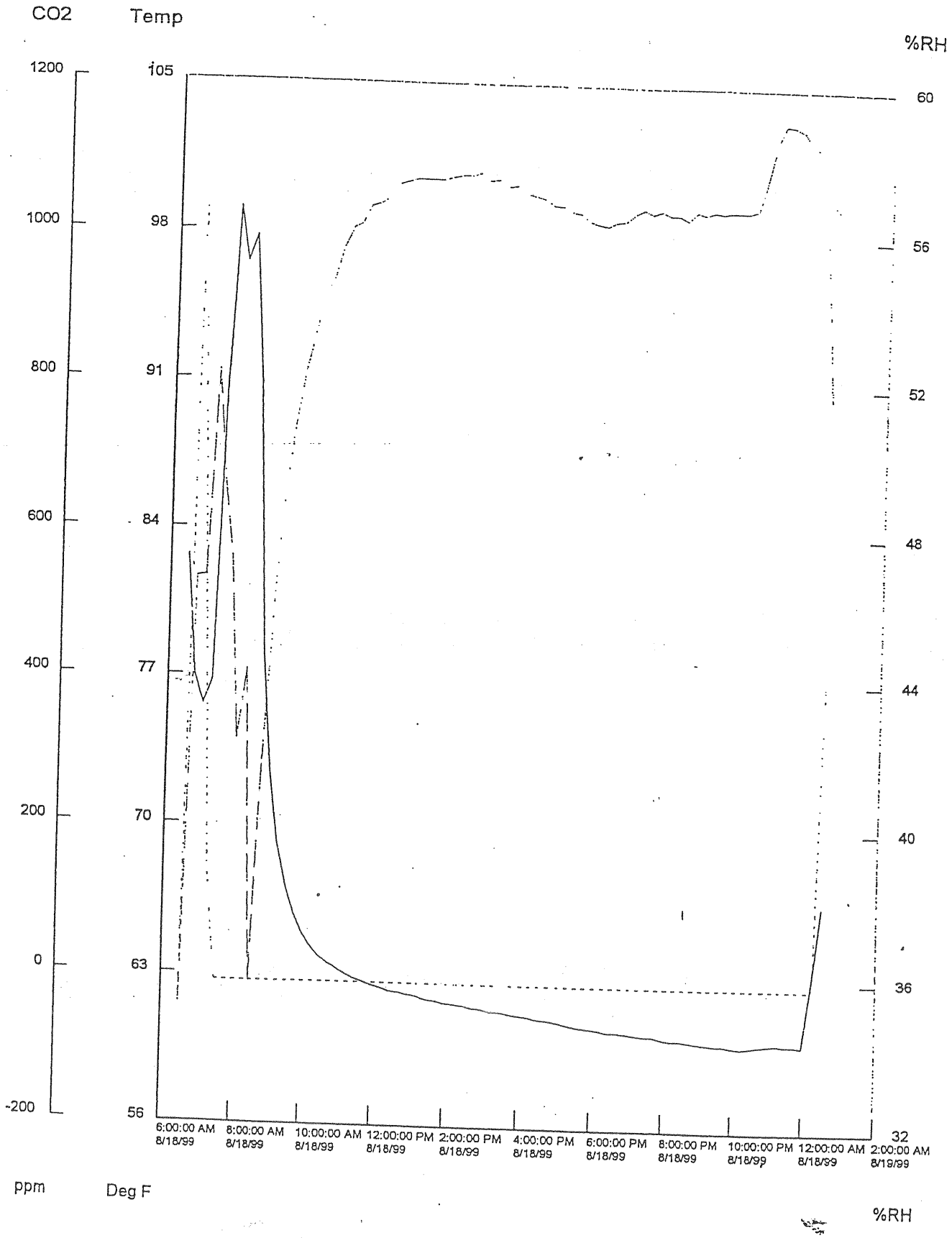
>
> > ---------
> > From: Brenda Reed[SMTP:brenreed@knology.net]
> > Sent: Monday, July 17, 2000 10:29 AM
> > To: Blandin, Russell S.
> > Cc: Houpt, John F.; fullbrr@gordon.army.mil; Griffin, Gordon D.;
> Poston,
> > Charles F.
> > Subject: Rick Assesment
> >
> > Mr. Blandin,
> >
> > I spoke with Mr. Houpt this morning, concerning health and safety issues
> > at the power plant located next to 25910. We would like your help in
> > doing a risk assessment. For the past 5 years we had a shift from noon
> > until 2000hrs. This shift was to check prices from Ga. Power hourly and
> > to relieve an operator from the plant as needed. If the generators ran
> > past 2000hrs this person stayed on for the duration. This year that
> shift
> > has been eliminated. Today the plant has to be on line at 1100hrs,
> > meaning that one of the two operators will work at least a 12hr shift
> with
> no possible relief from the heat. We have been told to use the
> -conditioning that was provided us in the control vans. The
> nperature in the control van with 3 tons of air-conditioning is over

P.8

> > degrees. Not a lot of help. Our ages run from 45 to 54 years old.
> > Thankyou for any help you can give us, and please let us know what you
> > need us to do.
> >
> My email address at work is:reedb@gordon.army.mil
> work phone is 791-6423/pwr plant 791-8379 home phone is 364-4516

Brenda
> >

FT.GORDON/IH DPW/EMS14600



P10

DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER ARMY MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

MCHF-DCMS-IH (40-5e)

20 Nov 00

MEMORANDUM FOR Directorate of Public Works (DPW), ATTN: Public Works Division, Facility Management Branch - Energy Management Section (EMS) (Mr.Pavliscsak),USASC&FG, Fort Gordon, GA 30905-5000

SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

1. Authority:

a. AR 40-5, 15 Oct 90, The Army Preventive Medicine Program.

b. DA PAM 40-503, Jan 98, the Army Industrial Hygiene Program.

2. References:

a. Department of Army Pamphlet (DA PAM) 40-502 - Hearing Conservation, 27 August 1991.

b. Technical Guidance (TG) 181, Noise Dosimetry and Risk Assessment, August 1999.

c. 29 Code of Federal Regulations 1910.95, Oct 2000 Occupational Safety and Health Administration (OSHA) Standards, Occupational Noise Exposure.

3. On 4 Oct 00, the Department of Community Medicine Service - Industrial Hygiene (IH) Section completed an updated survey of subject worksite in support of your Sep 00 request. The purpose of the re-survey was to update DA personnel noise hazard(s) exposure data and confirm appropriate type of Personal Protective Equipment (PPE) required to protect EMS personnel during operation/maintenance of electric generators.

4. Findings:

P 11

MCHF-DCMS-IH (40-5e)
SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

20 Nov 00

a. Results of noise hazard survey confirm that EMS personnel are exposed to noise levels (equal to and/or greater than 85 decibels Time Weighted Average (TWA)) which require them to be placed in a Hearing Conservation Medical Surveillance Program in accordance with reference (2b) above. See Enclosure, Table A, Noise Hazard Data, Time Weighted Average, EMS - Generator Plant.

b. Results of noise hazard survey confirm that EMS personnel are exposed to noise levels considered to be "noise hazardous" (equal to and/or greater than 85 decibels, non time weighted average (non TWA)) in accordance with reference (2a) above and required the use of PPE. See Enclosure, Table B, Noise Hazard Data, Non-Time Weighted Average, EMS - Generator Plant.

5. Recommendations:

a. Coordinate with the Occupational Health Clinic (OHC) to ensure all EMS personnel are enrolled in local Hearing Conservation Program.

b. Procure and require EMS personnel to use earmuffs and/or plugs as PPE when performing operation/maintenance tasks at subject location. PPE must be have a Noise reduction rating (NRR) of at least 24 decibels. The goal is to reduce the highest exposure measured (108 dB(A)) to less than 85dB(A). This can be accomplished with either earplugs or noise muffs. See Enclosure. Keep all PPE's clean, sanitary, and serviceable.

6. Point of contact is Mr. George S. Pruiett, Industrial Hygienist at 787-1214.

Encl

ERIC L. DOANE
COL, MC
Chief, Community Medicine Service

CF:
Post Safety

MCHF-DPCS-CMS (40-5e)
SUBJECT: Results of Noise Hazard Survey, EMS - Generator Plant

20 Nov 00

TABLE A, Noise Hazard Data, Time Weighted Average (TWA), EMS - Generator Plant

Sample Location\ Person	Sample Instrument	TIME	LEQ	Actual TWA	DA Standard
Office Area (Shed)	JT0110102 (Quest)	1hr 5min	84 dB(A)	75 dB(A)	85 dB(A)
Cool Area 60183	JT0110109 (Quest)	1hr 7min	76 dB(A)	67db(A)	85 dB(A)
Mr. Neal Skvarca (routine work area)	JT0110105 (Quest)	1hr 4min	101 dB(A)	92 dB(A)	85 dB(A)
Mr. William Ellis (routine work area)	JT0110101 (Quest)	1hr 7min	100 dB(A)	91 dB(A)	85 dB(A)

NOTE: LEQ - is the average sound level exposure measured over a representative portion of time (less than 8.0 hours exposure). Actual TWA (Time Weighted Average) - Measured exposure over 8.0 hour workday. Department of Army Standard (DA) of 85 dB(A) - TWA (8.0 hr) exposure criteria for enrollment of DA personnel into Medical Surveillance Program. In accordance with DA Noise Exposure criteria, the use of hearing protection as Personal Protective Equipment (PPE) is required for all noise exposures at/above 85dB(A) regardless of duration of exposure.

TABLE B, Noise Hazard Data, Non-Time Weighted Average (Non-TWA)- EMS, Generator Plant

Sample Location (Source)	Sample Instrument Number (Quest)	Non-TWA Exposure	DA Standard
Generator Unit #63488	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63511	HP7020006	108 dB(A)	85 dB(A)
Generator Unit #63502	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63425	HP7020006	106 dB(A)	85 dB(A)
Generator Unit #63483	HP7020006	105 dB(A)	85 dB(A)
Generator Unit #63487	HP7020006	106 dB(A)	85 dB(A)

NOTE: In accordance with DA Noise Exposure criteria, the use of hearing protection as Personal Protective Equipment (PPE) is required for all noise exposures at/above 85dB(A) regardless of duration of exposure. Non-TWA Noise levels are direct measurements of specific noise sources or areas.

Filename: GenSite noise

DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER army MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

MCHF-DPCS-CMS (40-5e) 31 Mar 00

MEMORANDUM FOR Chief, DPW COL Debow, ATTN: DPW,PWD,FAC ENG BR,/UMCS Supervisor (Mr. Pavliscsak), USASC&FG, Fort Gordon, GA 30905-5000

SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

1. Reference: 29 Code of Federal Regulation parts 1900 to 1910, Mar 00, Occupational Safety and Health Administration (OSHA) Standards, Department of Labor.

2. On 6 Mar 00, at the request of Mr. John Pavliscsak, William Jordan of Industrial Hygiene (IH) Section, in conjunction with Mr. Russ Blandin of Post Safety completed a review of the subject operation.

3. These findings are noted:

The operation's activities were roughly divided into three groups of tasks: a. Computer Operation and Shop Stock; b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop; c. Generator operations and maintenance. There are 9 workers at this activity, all with the same basic job functions.

a. Computer Operations and Stock Shop: consist of viewing CRT screens that indicate the Installation's power consumption, and the stocking of incoming supplies and equipment. The potential hazard in this section includes ergonomic issues and possible falling objects during stocking duties.

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly/repair shop: Hazards and associated controls were listed in the presurvey and were evaluated. Listed hazards needing additional controls included vision, hearing, hot surfaces, and chemicals. Additional hazards noted during the survey included steam and limited soldering.

c. Operations and Operator maintenance: Consist of 1500 kW generators powered by 12 cylinder diesel motors. Some exposures were already identified and controlled however additional hearing and chemical controls were needed.

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

4. Recommendation(s):

a. Computer Operations and Stock Shop: None

b. Mechanical/electrical/electronic inst/maint/rpr; Mechanical/electronic assembly repair shop:

(1). HAZCOM: Complete a chemical inventory of all the cleaners, chemicals, paints, etc. used and obtain associated Material Safety Data Sheets (MSDS). MSDS are available from this Section and/or the supplier. Coordinate HAZCOM training for personnel with Post Safety.

(2). Eye Protection: Keep the emergency eyewash master valve turned on. Flush weekly and document. Obtain chemical splash and impact safety goggles.

(3). Hand and Foot protection: Provide work gloves for metal and material handling. Provide correctly sized chemical protective gloves. Safety shoes must be steel toed and meet ANSI standards for slip resistance and electrical protection.

(4). Hearing Protection: Replace ear muffs and coordinate medical surveillance update (hearing exams) with Occupational Health Section.

c. Generator operations and maintenance (8th Ave Area):

(1). Provide adequate handwashing and hygienic facilities because of exposures to chemicals, oil and fuel.

(2). Insure the eye lavage and shower apparatus is checked at least weekly and documented.

MCHF-DPCS-CMS (40-5e)
SUBJECT: Annual (FY 00) Update of Workplace Health Hazards-Health Hazard Information Module (HHIM) Survey (s) Data, Energy Management Section, Bldg 14600 and Generator Sites

(3). Replace the unserviceable earmuffs, obtain disposable foam earplugs, chemical resistant gloves and heavy work gloves.

(4). Update the chemical inventory (including the Material Safety Data Sheets) for this site as stated for the repair shop above.

5. Results of Post Safety review is provided under separate report. See enclosure.

6. Point of contact is Mr. George S. Pruiett, Industrial Hygienist at 787-1214.

ENCL

ERIC L. DOANE
COL, MC
Chief, Community Medicine Service

CF:
Post Safety
CMS-OH

P16

S: 25 Apr 00

ATZH-PSB (385-10)

10 Mar 00

MEMORANDUM FOR Directorate of Pubic Works

SUBJECT: Special Standard Army Safety and Occupational Health Inspection of Energy Management Section, Directorate of Public Works

1. References:

a. E-mail note dated 2 Mar 00, SUBJECT: Request for Worksite Update

b. 29 CFR 1910, OSHA General Industry Standards

2. On 6 Mar 00, a Standard Army Safety and Occupational Health Inspection of the Energy Management Section, DPW was conducted by Russ Blandin, Safety and Occupational Health Specialist, Signal Branch Safety, Directorate of Public Safety. Was accompanied on the inspection by the section chief James Pavliscsak and William Jordan, Industrial Hygiene Technician, Community Medicine Service, DDEAMC.

3. A Risk Assessment Code (RAC) has been assigned to each deficiency to determine the degree of risk. Hazards should be abated expeditiously on a worst first basis beginning with a I, Imminent Danger to Life and Health (IDLH), and proceeding down to a IV, negligible.

4. The following deficiencies were noted:

a. Building 14600:

(1) Material Safety Data Sheets (MSDS) not on hand for hazardous chemicals used in the maintenance shop. Reference: 29 CFR 1910.1200. Ensure all personnel who use these hazardous chemicals are in full compliance with the standard, including: Employee training, a complete hazardous chemical inventory, an MSDS on hand in the workplace for each chemical and a written program. RAC III

(2) Fire extinguisher missing in maintenance shop. Reference: 29 CFR 1910.157(c)(4) Corrective action: Replace fire extinguisher. RAC III

(3) Personal protective equipment, eye/face shield not provided for employees use at bench grinder. Reference: 29 CFR 1910.133. Corrective action: All PPE must be provided to all employees when required. Recommend installing sign at machine to remind employees to use PPE when operating equipment. RAC III

(4) Guards missing and tool rests not properly adjusted on bench grinder in maintenance shop. Reference: 29 CFR 1910.215. Corrective action: Replace guards and properly adjust tool rests. RAC III

(5) Eyewash in kitchen area inoperable due to a pipe leak. Reference: 29 DFC 1910.151. Have eyewash pipe leak repaired and flush system weekly for several minutes. RAC III

(6) Lighting inadequate over workbench in maintenance shop. Corrective action: Install additional lighting at workbench. RAC III

(7) Ventilation inadequate in maintenance shop during peak maintenance operations involving spray-painting, etc. Ceiling-mounted exhaust fan is thermostatically controlled and failed to operate when attempt was made. Recommend spray painting be performed outdoors and switch installed on exhaust fan. RAC III

(8) Safety SOPs not established for key operations. Reference: AR 385-10 2-2(b). Corrective action: Establish/update SOPs that encompasses all operations, i.e., Lockout/Tag out, HAZCOM, Heat Injury Prevention, Working Around Moving Equipment, etc. RAC III

b. Generator Plant: Area off of 8th Avenue was inoperable and is undergoing major renovation that is scheduled for completion in a few months. Employees are exposed to multiple hazards in this area including: high heat; confined workspaces; high noise levels/vibration; maintenance operations; exhaust fumes; and bulk storage of fuels/oils. Would like to further evaluate working conditions once renovations are complete and normal operations are underway.

P 18

ATZH-PSB
SUBJECT: Standard Army Safe and Occupational Health Inspection of Energy Management Section, DPW

5. Request all corrective actions taken to abate deficiencies identified during the safety inspection (i.e., service and/or work order numbers, self help projects, etc.) and target date for correction be provided to this office as soon as possible or no later than date indicated on first page.

6. POC for this action is Russ Blandin at extension 791-7233.

for Russell S. Blandin
STEVEN C. BUZHARDT
C, Signal Safety Division
Directorate of Public Safety

CF:
DPS
GC

IH&PS

P 19

Reed, Brenda L.

From: Pavliscsak, James V.
Sent: Wednesday, October 28, 1998 8:45 AM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Cc: Oglesby, Curtis D.; '- Oglesby, Curtis D.'
Subject: FW: Respiratory Protection, DPW-EMS, Power Plant Personnel

FYI

From: Pavliscsak, James V.
Sent: Wednesday, 28 October, 1998 8:42 AM
To: pablo_nogueras@ddeamc.smtplink.amedd.army.mil; maria_delvalle@ddeamc.smtplink.amedd.army.mil; jimmy_summers@ddeamc.smtplink.amedd.army.mil; 'george_pruiett@ddeamc.smtplink.amedd.army.mil'
Subject: RE: Respiratory Protection, DPW-EMS, Power Plant Personnel

The safety equipment referred to in the employees' job description includes eye protection (safety glasses and/or face shield), steel toe safety shoes, hearing protection (ear plugs and ear muffs), and acid resistant rubber aprons and gloves. At the present time, the only respiratory protection required and worn is a dust mask when in dusty or spray painting areas, this happens infrequently.

In the past, during the course of their federal and private employment, all UMCS personnel have been exposed to asbestos, lead, high levels of carbon soot, fiberglass and other airborne material which may adversely affect their health over time. Because of this, they should continue to be monitored.

Respectfully,

James V. Pavliscsak
UMCS, FAC ENG BR
PWD, DPW
(706) 791-6423

From: george_pruiett@ddeamc.smtplink.amedd.army.mil [SMTP:george_pruiett@ddeamc.smtplink.amedd.army.mil]
Sent: Thursday, 22 October, 1998 5:21 PM
To: Pavliscsak, James V.; pablo_nogueras@ddeamc.smtplink.amedd.army.mil; maria_delvalle@ddeamc.smtplink.amedd.army.mil; jimmy_summers@ddeamc.smtplink.amedd.army.mil; george_pruiett@ddeamc.smtplink.amedd.army.mil
Subject: Respiratory Protection, DPW-EMS, Power Plant Personnel

<<File: 40-8.doc>><<File: 29cfr.txt>>

1. Discussed subject issue with Mr. Pavlisac today. He has informed me that his personnel may be required and sometimes do enter areas on Fort Gordon that required the use of respirators, i.e. mechanical rooms. We (IH) have not fit test this group of worker in the past but would be glade to if Mr. Pavlisac "verifies" that this requirement is current.

2. Additionally, some of this group of workers do have facial hair growth that prevent respirator fit testing in accordance with local

P 20

Brenda Reed

From: "Reed, Brenda L." <reedb@gordon.army.mil>
To: "'BrenReed'" <brenreed@knology.net>
Sent: Sunday, September 24, 2000 12:06 PM
Subject: FW: Respiratory Protection, DPW-EMS, Power Plant Personnel

Brenda Reed
UMCS Operations
791-6423

> -----Original Message-----
> From: Reed, Brenda L.
> Sent: Friday, September 08, 2000 11:06 PM
> To: Otto, William J.
> Subject: FW: Respiratory Protection, DPW-EMS, Power Plant Personnel
>
> Pertains to safety issues.
>
> Brenda Reed
> UMCS Operations
> 791-6423
>
> -----Original Message-----
> From: Pavliscsak, James V.
> Sent: Wednesday, October 28, 1998 8:45 AM
> To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; -
> Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; -
> Skvarca, Neal
> Cc: Oglesby, Curtis D.; '- Oglesby, Curtis D.'
> Subject: FW: Respiratory Protection, DPW-EMS, Power Plant Personnel
>
> FYI
>
> ---
> From: Pavliscsak, James V.
> Sent: Wednesday, 28 October, 1998 8:42 AM
> To: pablo_nogueras@ddeamc.smtplink.amedd.army.mil;
> maria_delvalle@ddeamc.smtplink.amedd.army.mil;
> jimmy_summers@ddeamc.smtplink.amedd.army.mil;
> 'george_pruiett@ddeamc.smtplink.amedd.army.mil'
> Subject: RE: Respiratory Protection, DPW-EMS, Power Plant Personnel

P21

>
>
> The safety equipment referred to in the employees' job description
> includes eye protection (safety glasses and/or face shield), steel toe
> safety shoes, hearing protection (ear plugs and ear muffs), and acid
> resistant rubber aprons and gloves. At the present time, the only
> respiratory protection required and worn is a dust mask when in dusty or
> spray painting areas, this happens infrequently.
>
> In the past, during the course of their federal and private employment,
> all UMCS personnel have been exposed to asbestos, lead, high levels of
> carbon soot, fiberglass and other airborne material which may adversely
> affect their health over time. Because of this, they should continue to
> be monitored.
>
> Respectfully,
>
> James V. Pavliscsak
> UMCS, FAC ENG BR
> PWD, DPW
> (706) 791-6423
>
>
>
>
>
>
> ---------
> From:
> george_pruiett@ddeamc.smtplink.amedd.army.mil[SMTP:george_pruiett@ddeamc.s
> mtplink.amedd.army.mil]
> Sent: Thursday, 22 October, 1998 5:21 PM
> To: Pavliscsak, James V.; pablo_nogueras@ddeamc.smtplink.amedd.army.mil;
> maria_delvalle@ddeamc.smtplink.amedd.army.mil;
> jimmy_summers@ddeamc.smtplink.amedd.army.mil;
> george_pruiett@ddeamc.smtplink.amedd.army.mil
> Subject: Respiratory Protection, DPW-EMS, Power Plant Personnel
>
> <<File: 40-8.doc>><<File: 29cfr.txt>>
> 1. Discussed subject issue with Mr. Pavlisac today. He has informed
>
> me that his personnel may be required and sometimes do enter areas on
>
> Fort Gordon that required the use of respirators, i.e. mechanical

> rooms. We (IH) have not fit test this group of worker in the past
> but
> would be glade to if Mr. Pavlisac "verifies" that this requirement is
>
> current.
>
> 2. Additionally, some of this group of workers do have facial hair
> growth that prevent respirator fit testing in accordance with local
> regulation (DDEAMC 40-8) and legal requirement contained in OSHA
> standard 29 CFR 1910.134(g)(1)(i)(A), Respiratory Protection
> Standard.
> See attached documents.
>
> 3. My guidance to Mr. Pavlisac is the following if respirators are
> to
> be used by his personnel: (1) require applicable personnel to shave
> (2) purchase special type of respirator(s), to be identified by IH
> Section or (3) eliminate requirement to enter areas requiring
> respirator use.
>
> 4. Mr. Pavlisac, please advise me on what action you plan to
> implement. Thanks, George S. Pruiett - Industrial Hygienist at
> 787-1214.
>
>
>
>

ANNUAL INSPECT

DRAFT

P1

DEPARTMENT OF THE ARMY
249TH ENGINEER BATTALION (PRIME POWER)
3RD PLT, B COMPANY
FT. BENNING, GA 31905-6006

CECPW-MB-D

10 Feb ~~97~~ 98

MEMORANDUM FOR Mr Glen Stubblefield, Chief of Energy, DPW, Fort Gordon, Ga

SUBJECT: Annual Inspection of the EMD Power Plants located at Fort Gordon, Ga.

PROJECT NUMBER: 98BP10

SUBMITTED BY: SFC Guy Gammons

PERSONS CONTACTED:
Mr. Curtis Oglesby, DPW Energy Branch, (706) 787-4241
Mr. James Pavliscsak, Chief, EMCS (Power Plant Operators) (706) 791-6423
Mr. Jim Kaefer, Johnson Controls, (Power Plant Maintenance) (706) 791-4133

PURPOSE: This report documents the findings and recommendations of the annual inspection (AI) of two, 4.5MW power plants leased to the Department of Public Works (DPW) at Ft. Gordon, Ga.

1. Two 4.5MW EMD power plants were installed at Ft. Gordon in July of 1995 by 2nd Plt, A Co, 249th Engr Bn. In March of 1996, and February of 1997, 3rd Plt, B Co, 249th Engr Bn performed the annual inspections of the power plants. These power plants are operated by the DPW Energy Management Control Systems (EMCS), and maintained by Johnson Controls World Services Inc, under the provisions of the Loan Program Agreement.

2. The inspection of the two power plants, PP-1 and PP-2 were based on the checklist provided by the US Army Prime Power Program, Power Generation and Transmission System Assets. The results of the past two inspections were used to establish a history and a comparison of the general condition of the power plants.

3. The general condition of the power plant is marginal. Spills are cleaned up and some maintenance has been performed. However, there is maintenance that has not been accomplished or records kept. SSG Smith, the 52E that maintained the plant part time while assigned to a signal unit on post, did the majority of the maintenance and record keeping. Since he departed, maintenance has suffered. As an example, Unit PP1-3 has the same deadlining deficiency that it had last November. On five of the six generators, the exhaust dampers do not close after operation which allows water entry into the muffler. This deficiency was noted last year.

DRAFT

The individual inspection sheets list all deficiencies on the generating units and the control vans. Unless specifically mentioned recommendations for manufacturers literature and SOP's will be provided by 3rd Plt, B Company 249th Engr Bn as they are acquired. A breakdown of areas and recommendations follow.

4. Records and Reports:

a. A power plant SOP does not exist, however there is information on how to bring the plant online, in each control van. A list of operator level maintenance functions is posted in the binder being used as a log book. Eng Form 2198 (log books) were provided to the EMCS with instructions on how to fill them out.

Recommendation: Provide EMCS with an SOP that they can use to tailor it to their power plant to insure that all operators have a single source of information to operate and maintain the plant.

b. A caution and clearance SOP does not exist. There are currently no procedures for initiating a caution or a clearance on a piece of equipment. Procedures for locking and tagging out equipment must be implemented to insure that work being done on the equipment is done safely.

Recommendation. Provide EMCS with a caution and clearance log book, complete with caution and clearance tags, caution and clearance sheets, and an SOP.

c. EMCS does not have any records of the power plant being installed at Fort Gordon.

Recommendation: Loan Program should provide EMCS with the AAR that A Company, 249th Engr Bn submitted upon installing and testing the plant.

d. A monthly battery maintenance plan has not been established. Records indicate that battery charger voltage is checked and written down daily.

e. It is important that all maintenance performed by the operators, and Johnson Controls, be written into the maintenance log books.

f. An EMD special tool was broken during the inspection. It is the injector rack gage. NSN 5210-00-88-7549, Part# 8339610. This tool should be acquired before the next inspection. Mr Kaefer, Johnson Controls is signed for the tool.

5. CONTROL VANS AND SWITCHGEAR:

a. Power Plant-1 (PP-1) Control Van

(1) The control room and battery room fan are inoperative.

(2) Unit #2, #3 and load tie circuit breaker are missing the trip counter spring.

Recommendation. The literature to service the circuit breakers are not on hand. Procure the manufacturers literature and order the part.

(6) All batteries were low on water.

Recommendation. Establish a monthly battery maintenance plan that includes checking the electrolyte levels, cell voltage, and specific gravity tests. A pilot cell should be checked weekly, and a log kept of all checks and services.

(7) The engine hour meters are inaccurate.

Recommendation. The meters need to be calibrated or replaced by the Loan Program.

6. GENERATORS

PP1-1

a. Class I leak from soakback pump. The TM states that the soakback pump be replaced every two years. Replace soakback pump. Cost is approximately $810.00. Oil Circulating Pump Old Part# 8274509, New Part# 40049307. The spider coupling should also be replaced with the pump, part# 8084884.

b. Oil bath air filters low on oil.

c. Coolant in airbox by cylinders 9 and 10. Leak is not from the jumper tubes. Troubleshoot to locate the source of the leaks.

d. Class II leak from engine mounted fuel filters and fuel pump.

e. The injector rack adjustment tool will not fit onto adjustment rack. Replace injector #13.

f. The governor is overfilled with oil.

PP1-2

a. Class III leak outlet side of soakback pump. Replace soakback pump. Cost is approximately $810.00, Oil Circulating Pump Old Part# 8274509, New Part# 40049307 The spider coupling should also be replaced with the pump, part# 8084884.

b. Class I leak acorn filter.

c. Class II leak oil scavenging pump.

d. Class II leak governor sight glass.

e. Low oil level in oil bath air filters

f. Bottom right oil bath air filter has contaminated oil. Flush and replace oil.

g. Exhaust damper does not fully close after shutdown. Adjust damper to close properly.

h. Fuel pressure gauge sticks.

i. The governor is overfilled with oil.

j. Coolant has contaminants floating on top. Drain and flush as necessary.

PP1-3

a. Class II leak where fan drive shaft comes out of front accessory drive.

b. Class II leak from main oil pump.

c. Class II leak from left bank prelube check valve.

d. Class II leak on inlet pipe to soakback pump.

e. Class III leak from soakback pump. Replace pump. Cost is approximately $810.00, Oil Circulating Pump Old Part# 8274509, New Part# 40049307 The spider coupling should also be replaced with the pump, part# 8084884.

f. Class III leak from governor sight glass.

g. Class III leak from oil strainer housing drain plug.

h. Class III leak form prelube supply pipe.

i. Class III leak from valve on output line from filter bank.

j. Class I leak from left bank water pump.

k. The injector rack adjustment tool will not fit onto adjustment rack. Replace injector #6.

l. Exhaust damper will not close properly. Adjust damper.

m. Governor oil level low.

n. Class I leak from acorn filter.

o. Coolant has contaminants floating in it.

PP2-1

a. Exhaust leak on first expansion joint forward of ring screen. Replace gasket. The gasket is on hand at the power plant.

b. 1 of 8 fan belts missing. Replace as a set. Several sets of fan belts are stored at the power plant.

c. Class II leak from left front coffin cover. Gaskets are on hand at the power plant.

d. Class III leak form soakback pump. Replace pump. Cost is approximately $810.00. Oil Circulating Pump Old Part# 8274509, New Part# 40049307. The spider coupling should also be replaced with the pump, part# 8084884.

e. Class III leak from scavenging oil pump.

f. Class III leak from right bank prelube valve

g. Exhaust damper does not close after unit shutdown.

PP2-2

a. Class III leak from soakback pump. Replace pump. Cost is approximately $810.00. Oil Circulating Pump Old Part# 8274509, New Part# 40049307. The spider coupling should also be replaced with the pump, part# 8084884.

b. Class III leak from low water detector.

c. Class III leak on outlet side of soakback pump piping 90 degree elbow.

d. Exhaust damper will not close after shutdown. Adjust damper.

e. Class III leak at governor sight glass.

PP2-3

a. Class III leak from emergency fuel shutoff valve. Replace valve.
FUEL CUTOFF VALVE ASSEMBLY
OLD PART# NEW PART #'S
8175542 9317782 ($149.02), 8358202 ($39.07)
IMMEDIATE ACTION IS REQUIRED TO STOP FUEL FROM LEAKING INTO THE SOIL
EMCS PERSONNEL ARE AWARE OF THE PROBLEM.

b. Class III leak from soakback pump. Replace pump. Cost is approximately $810.00. Oil Circulating Pump Old Part# 8274509, New Part# 40049307. The spider coupling should also be replaced with the pump, part# 8084884.

c. Class III leak from left bank prelube valve.

d. Class III leak from governor sight glass.

e. Exhaust damper does not close after operation. Adjust damper.

f. Unit is deadlined. It starts but will not run. Unit goes out on overvoltage while manually adjusting the governor to sync speed. Needs troubleshooting.

g. Class III leak from low water detector.

7. RECOMMENDATIONS.

a. On a whole, the customer is unhappy with the condition of the plant upon receipt, and the amount of repairs required to keep the units running. They feel that the plant was not properly overhauled to depot level standards as they were led to believe.

b. The operators have very minimal training on the operation of the power plant. According to the power plant operators, the initial training they received was inadequate to qualify them to operate the power plant. Last year during the operator training that was conducted, a few operators spent some time in the classes that were given as part of EMD refresher, nobody was actually able to go through the entire class. The operators are on a shift schedule and have other duties that did not allow them to go through this training. I highly recommend that all the operators complete the EMD refresher course at Ft Belvoir. This will give them the confidence and ability to safely operate and understand the operation of the power plant.

c. From the last annual inspections it appears that the engine hour meters have never worked correctly. The Loan Program should be responsible for the replacement of these meters.

d. The main contacts of all the circuit breakers need to be replaced at the next inspection if they wear any more. Recommend the Loan Program provide the contacts since they obviously were not replaced during the overhaul.

e. A greater emphasis on daily maintenance and repair of existing deficiencies should be undertaken.

8. The POC for this report is the undersigned at DSN 784-7123/6005

9. APPENDIX LISTING.

F. Inspection Results.

GUY GAMMONS
SFC, USA
Prime Power Supervisor

P7

DEPARTMENT OF THE ARMY
3RD PLT, B CO.
249 ENGINEER BN, PRIME POWER
FT BENNING, GA, 31905

CECPW-MB-D

12 FEB. 97

SUBJECT: After Action Report, Annual Inspection (AI) 9MW EMD Plant, Ft. Gordon, GA

PROJECT NUMBER: 97BP014

DATES OF VISIT: 21 JAN - 13 FEB 97

SUBMITTED BY: SSG SCOTT

PERSONS CONTACTED:

Mr. Curtis Ogelsby, DPW Energy Branch, 706-787-4601
Mr. Bob Calhoun, Johnson Controls World Services Inc. 706-787-4601
Mr. James Pavliscsak, Mech. Eng. Tech, Chief EMCS, DSN 780-6423
SSG Duane Smith, 52E, HHC 201 st MI Battalion, (Plant) DSN 780-8379
Mr. Mike Hunter, Loan Program Manager, DSN 654-1474
SFC Sweeney, Heavy Maintenance Team, FT. Belvoir, DSN 656-3002
Mr. Patrick Wilson, Marine Systems Inc., Chesapeake, VA 757-543-3000

1.0 PURPOSE: This report is intended to document the findings and Recommendations developed from the Annual Inspection (AI) of two 4.5 MW EMD power plants currently leased to the Department of Public Works (DPW) at Ft. Gordon, GA. It also documents EMD Refresher training and installation of a turbocharger on Power Plant #2 unit #2 (PP2-2).

2.0 BACKGROUND: Two 4.5 EMD power plants were installed at Ft. Gordon in July 1995 by 2nd Plt, A Co. 249th Engineer Battalion (EN BN). In March of 1996 3rd Plt, B Co. 249th EN BN completed the first AI. The units positioned on Ft. Gordon are currently operated and maintained by the DPW Energy Management Control Systems (EMCS) under the provisions of the Prime Power Loan Program. SSG Smith, 52E assigned to the 201st MI Battalion, is the maintenance NCO for the Plant and currently works at the plant three days a week. SSG Smith coordinates all scheduled and non-scheduled maintenance with EMCS.

3.0 PROJECT SCOPE:

3.1 Perform AI on two 4.5 MW EMD power plants. Time allotted 10 days.

3.2 Preform EMD Refresher Training. Time allotted six days.

P8

3.3 Turbocharger removal and installation on generator number PP2-2. Time allotted four days.

4.0 DISCUSSION:

4.1 Coordination for the inspection was made telephonically with above listed personnel. The special tools required to perform tests on the EMD prime mover are normally with the plant. However, they are not at Ft. Gordon and this was identified and annotated in the last AI (March 96) After Action Report (AAR). The tools required for the generator and the control van are generic to the platoon. The special tools required for the prime mover were obtained from Heavy Maintenance platoon and Marine Systems Inc.

4.2 The inspection of the two EMD plants was based on a copy of an EMD AI checklist from the US Army Prime Power Program, Power Generation and Transmission System Assets (copy attached as annex A). This was the checklist used in last year's AI and was adhered to this year. The checklist provides a good overview of the general condition of the power plant. The results from last year's AI were used as a baseline for this years inspection and should continue to be maintained as a baseline for future inspections.

4.3 The condition of the plant is good. SSG Smith acts as a liaison between EMCS and the loan program. He is doing an excellent job in ensuring that the required maintenance is done and that the EMCS personnel have been properly trained. It should be noted that the successful operation and maintenance of the plant at Ft. Gordon are in large part due to SSG Smith, he has ensured that all the required standards for successful operations are being met. The EMCS personnel responsible for the operation and maintenance of the plant are doing an excellent job.

4.4 Special emphasis was placed, from the onset of this mission, to ensure that all the soldiers were cross trained in the Additional Skill Identifiers (ASI). This was accomplished by conducting training the week before deployment. The training consisted of class room instruction at Ft. Benning with hands on training at Ft. Gordon. This worked well but it must be noted that cross training increases the time required to complete the AI. The cross training at platoon level increased the mission readiness of the soldiers.

4.5 There were discrepancies found in the control vans on relay time dial and Indicating contactor tap settings. All settings were changed IAW TM 5-6115-456-15 page 89 FO 44. For more information, see the relay test sheet in Annex C.

4.6 The initial polarization index on all the generators indicated that there was moisture in the windings . After loading the PP1 for three hours the readings came within tolerance . Time and weather conditions did not allow for retesting of PP2.

4.7 Two secondary missions were incorporated into this project for scheduling convenience. They were EMD Refresher Training/Recertification and the installation of a turbocharger on PP2-2.

4.7 EMD Refresher Training was conducted in the third week. The materials used for the training were obtained from the Prime Power Production Specialist Course at Ft. Belvoir, VA. The training schedule and the criteria sheets used for this training are in Annex E. SSG Thomason and SSG Smith were the primary instructors. SSG Thomason had attended the EMD Refresher Training at Ft. Belvoir in 1996 and SSG Smith was well versed in peculiarities of these plants. The refresher training with the AI worked well and should be incorporated in the future AI. It is also suggested that the training be conducted after the bulk of the AI is completed.
The turbocharger (turbo) fault on PP2-2 was diagnosed before the AI. The fault identified was that the seals, internal to the turbo, were defective causing a continuous prelude condition while the soakback pump was on. This resulted in the cylinders filling with oil. During the initial barr over of the unit, oil was ejected into the prime mover compartment, which required extensive clean up after each start of the unit. It also caused the air box to accumulate excessive oil. The turbo seals fault was caused by a 30 psi check valve failure which blew the seals, internal to the turbo. It is believed that the fault identified above was present at the time of plant installation. The failure of the check valve presumably caused the eventual failure of the turbo seals . Mr. Mike Hunter , Loan program manager, shipped the turbo from Ft. Belvoir . It was received during the week of EMD refresher training and scheduled for installation the following week. A 9 ton boom truck was required for removal and installation of the turbo. The requirements for the lifting device was that it have sufficient reach and swing. The turbo installation took approximately four, 12 hour days. The other special tools required were jack screws which were fabricated on site. It was also noted during the AI that excessive noise was coming from this turbo. Upon completion on the turbo installation the plant was brought on line and 4.5 MW of load assumed. The plant was run for 3 hours under a full load. The replacement of the turbo solved the above identified problems.

5.0 FINDINGS AND RECOMMENDATIONS:

5.1 The findings discussed in this section are deficiencies that require immediate attention. Additional findings by unit are listed in Annex C.

5.2 The general condition and appearance of the plants are good. Fire and safety materials are present and maintained. Adequate cleaning supplies are on hand. Over all appearance of the units is excellent.

5.3 The SOP for the plants is vague and is hard to understand. It is recommended that a more precise SOP covering all aspects of plant operation and maintenance be written. It is also noted that the operators should be certified by Prime Power Cadre.

5.4 All the lubricating oil circulating pumps (soakback pumps) in the units leak. It is recommended that all the soakback pumps be replaced. An attempt to rebuild the soakback pump was made on PP-3 by installing a new seal kit. The pump continued to leak. TM 5-6115-456-15 page 3-69, item 16, under "Unit Exchange" states that " immersion heater pump and motor" should be replaced every two years. The spider coupling should also be replaced when the pump

4
P10

5.4 is replaced.

5.5 There is a class II oil leak on PP-3 around the soak back filter (in board filter closest to fan). This leak was identified in the last AI. The location of the leak could not be located at this time. It is recommended that the filter bank be removed if necessary to locate the leak.

5.7 It is recommended that the special tools required for AI of the prime mover on the EMD be maintained at company level (see annex b).

5.8 The engine hours meters in all the units need to be checked for accuracy. The actual readings do not correspond with actual hours operated.

6.0 CONCLUSIONS:

6.1 The overall appearance and condition of these plants is excellent. The above findings reflect very minor problems for an inspection of this detail. The data from last year's AI was used as a historical log for comparison. This data should be maintained at the plant and at platoon level. To ensure the same quality of the maintenance in the future it is recommended that a 52E position be continued at Ft. Gordon.

ANNEXES

ANNEX A	List of Personnel assigned
ANNEX B	Test performed and tools required list.
ANNEX C	Test data inspection sheets.
ANNEX D	Hazard analysis
ANNEX E	EMD Refresher Training schedules and criterion sheets
ANNEX F	Project tasker/control #
ANNEX G	Man-hour and Cost comparison Report

Review
Gerald L. Boortz
USA, CW3
2efvPower Station Commander

DAVID J. SCOTT
USA, SSG
NCOIC

Timothy M Kelley
Major EN
Commanding

704
p 11

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-1

POI FILE TITLE: Introduction

SCOPE: Introduction to the MP-36A powerplant, configuration, nomenclature of components, and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant, configuration, nomenclature of components, and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Know the requirements for completing the EMD refresher subcourse.
2. Identify the major components of the EMD powerplant.
3. Know the components necessary for a typical EMD deployment.
4. Know the size and horsepower ratings of the engine.
5. Know the size and power rating of the generator.

103
P 12

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-2

POI FILE TITLE: Lube Oil System

SCOPE: Detailed description of the MP-36A powerplant lube oil system; major components; scavenging, main, piston cooling, soakback and prelube subsystems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant lube oil system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Know the five function of the four systems that make up the lube oil system.
2. Identify the different lube oil components, their functions, and operation characteristics.
3. Be able to state the flow of oil through the system.
4. Know the location of the components on the unit and trace the flow of oil through the system.

106
p 13

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-3

POI FILE TITLE: Fuel System

SCOPE: Detailed description of the MP-36A powerplant fuel system; major components; fuel transfer and engine fuel system flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant fuel system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the fuel system.
2. Know the purpose of each fuel system components.
3. Be able to locate the components on the unit.
4. Know the route of the fuel flow through the unit.
5. Be able to perform operator level maintenance on the fuel system.

107
P14

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-4

POI FILE TITLE: Cooling System

SCOPE: Detailed description of the MP-36A powerplant cooling system; major components; cooling and immersion heater systems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant cooling system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the cooling system.
2. Know the purpose of each cooling system components.
3. Be able to locate the components on the unit.
4. Know the route of the coolant flow through the unit.
5. Be able to perform operator level maintenance on the cooling system.

~~108~~
P15

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-5

POI FILE TITLE: Air Intake and Exhaust System

SCOPE: Detailed description of the MP-36A powerplant air intake and exhaust system; major components; air intake and exhaust flow systems flow; maintenance procedures; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant air intake and exhaust system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify the components of the air intake and exhaust system.
2. Know the purpose of each air intake and exhaust system components.
3. Be able to locate the components on the unit.
4. Know the route of the air intake and exhaust flow through the unit.
5. Be able to perform operator level maintenance on the air intake and exhaust system.

109
p 16

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-6

POI FILE TITLE: Control Skid and Generator Room

SCOPE: Detailed description of the MP-36A powerplant control skid and generator room; battery banks; battery charger; speed sensing panels; control panels; protective relays; fuses; annuniator panel; static exciter; generator control cabinet.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the MP-36A powerplant operating parameters of the control skid and be able to trouble shoot the unit due to electrical and mechanical as indicited by the annunciator panel and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Locate and identify the components of the control skid and the generator room.
2. Describe the function and operation of components located in the control unit and generator room.
3. List the twelve annunciator faults..
4. List the actions that the annuciator faults cause.
5. List the seventeen devices that will cause a shutdown or lockout and list their specific causes.

~~110~~
P17

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-7

POI FILE TITLE: Manual Operations

SCOPE: Detailed description of the MP-36A powerplant manual operation procedures; isolated operation; parallel operation.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re familiarize students with the proper procedures and sequences while manually operating the MP-36A powerplant isochronously and paralleled with other units.and cooling system and safety precautions.

ENABLING LEARNING OBJECTIVE:

1. Identify and perform the pre-operational checks and starting procedures on the Mp-36A powerplant.

2. Explain the load and speed restriction of the 1500 kW EMD units..

3. Explain the function and operation of the engine speed relays located on the speed sensing panel..

4. Locate, identify, and explain the function and operation of the manual controls.

5. List the steps required to close on to an isolated bus, and to parallel on to a live bus in the manual mode.

   List the steps required to manually start, synchronize, and load the 4.5 MW electrical powerplant.

HH
P 18

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-8

POI FILE TITLE: Electrical Systems

SCOPE: Detailed description of the MP-36A powerplant AC and DC electrical system; location and function of electrical components; Troubleshooting electrical problems using electrical prints; Practical exercise in tracing electrical circuit.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with troubleshooting an electrical problem on the MP-36A and MC-53 (Control Skid) using standard schematic diagrams.

ENABLING LEARNING OBJECTIVE:

1. Locate and identify the electrical components of the Mp-36A and the MC-53 on Change 4 and on the Emergency Generator control Diagrams.

2. Describe the function of the components in the electrical systems of the MP-36A and MC-53.

3. Describe the operation of the MP-36A and the MC-53 unit's AC and DC electrical system.

4. Identify the safety hazards of the 4.5 MW EMD powerplant electrical systems.

5. Trace an electrical circuit on the 4.5 MW EMD powerplant using the Change 4 manual.

412
P19

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-9

POI FILE TITLE: Introduction to Operations

SCOPE: Detailed description of pre-operational check; manual starting; kW and kVAR load sharing; manual shutdown; post-operational checks.; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4.

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4. aper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the pre-operational checks on the EMD 4.5 MW powerplant; start unit; place the unit on line; proportionally share kW and kVAR load; remove unit from the line per instructions; perform during and after operations checks and services.

ENABLING LEARNING OBJECTIVE:

1. Function as Equipment Operator..
2. Perform pre-operational check and services.
3. Function as Control Room Operator.
4. Initiate single and mult unit start up.
5. Perform during operation checks and services.
6. Pick up load with single unit on a dead bus.

Maintain bus parameters while operating a single unit on an isolated bus.

H3
P20

8. Parallel a unit to a live bus and pick up load.

9. Maintain bus parameters while operating multiple units on a hot bus.

10. Initiate unit shut down procedures.

11. Perform after operations checks and services.

114
P21

661-52E, PRIME POWER PRODUCTION SPECIALIST COURSE

EMD REFRESHER TRAINING

CRITERIA SHEET

POI FILE NO: OT-11

POI FILE TITLE: Powerplant Operation

SCOPE: Practical exercise operating 4.5 MW EMD powerplant; pre-operational check; manual starting; isolated and parallel operations; kW and kVAR load sharing; manual shutdown; post-operational checks; log book procedures; operator maintenance procedures; operator troubleshooting; and safety precautions.

JOB TASK NUMBERS SUPPORTED:

PREREQUISITE TASK:

REFERENCES: TM 5-6115-456-15 w/ch4

STUDENT TOOLS/MATERIALS/EQUIPMENT REQUIRED: TM 5-6115-456-15 w/ch4, paper, pencil.

TERMINAL LEARNING OBJECTIVE:

To re-familiarize students with the pre-operational checks on the EMD 4.5 MW powerplant; start unit; place the unit on line; proportionally share kW and kVAR load; remove unit from the line per instructions; perform during and after operations checks and services correctly annotate the Engineer Log Book to accurately reflect plant operations; shut down and secure the powerplant upon instructions..

ENABLING LEARNING OBJECTIVE:

1. Follow plant safety procedures.
2. Function as Equipment Operator..
3. Perform pre-operational check and services.
4. Function as Control Room Operator.

Initiate single and mult unit start up.

H5
P.22

6. Maintain Engineer Log Book.
7. Perform during operation checks and services.
8. Pick up load with single unit on a dead bus.
9. Maintain bus parameters while operating a single unit on an isolated bus.
10. Parallel a unit to a live bus and pick up load.
11. Maintain bus parameters while operating multiple units on a hot bus.
12. Identify operational deficiencies and troubleshoot units to identify the cause.
13. Perform operator level repair as necessary.
14. Perform refueling techniques as required.
15. Initiate emergency shut down procedures.
16. Initiate unit shut down procedures.
17. Perform after operations checks and services.
18. Review engineer log book and identify any discrepancies.

DEPARTMENT OF THE ARMY
249TH ENGINEER BATTALION (PRIME POWER)
1 ST PLT, B COMPANY
FT. BRAGG, NC 28307-0629

CECPW-MB-D

4 Feb 99

MEMORANDUM FOR Commander, B Company, 249th Eng. Bn (Prime Power),
ATTN: OPNS, Ft Bragg, NC 28307-0629

SUBJECT: Maintenance of the EMD Power Plants located at Fort Gordon, Ga.

PROJECT NUMBER: 99BP05

SUBMITTED BY: SSG Call

PERSONS CONTACTED:
Mr. Curtis Oglesby, DPW Energy Branch, (706) 787-4241
Mr. James Pavliscsak, Chief, EMCS (Power Plant Operators) (706) 791-6423
Mr. Glen Stubblefield, DPW, Energy Engineer, (706) 791-4243
Mr. Jim Kaefer, Johnson Controls, (Power Plant Maintenance) (706) 791-4133

1. **PURPOSE:** This report documents the work completed and recommendations of the maintenance of two 4.5MW power plants, leased to the Department of Public Works (DPW) at Ft. Gordon, Ga.

2. **BACKGROUND:**

2.1. **GENERAL:** Preventive maintenance of the two power plants was scheduled based on a request from Mr. Stubblefield. A presite was performed on December 6, 1998 by CW2 Shoefstall and SSG Call to identify parts that needed cleaned, repaired or replaced.

2.2. MISSION OUTLINE: Preventive maintenance was conducted by 5 Prime Power personnel over an 16 day period. The maintenance team consisted of 3 Power Station Electricians, 1 Power Station Mechanics and 1 Instrumentation Technician. The following services will be completed by the maintenance:

- Troubleshoot the turbocharger on Unit's 2-1 and 2-2.
- Replace exhaust gaskets on all units.
- Repair exhaust dampers on all units.
- Replace coffin cover gaskets on all units.
- Troubleshoot immersion heater on Unit 1-3.
- Clean immersion heaters on all units.
- Check unit safeties and gauges.

2.3. **TRAINING VALUE:** This preventive maintenance project is beneficial to the Prime Power Battalion by allowing us to perform many of our mission essential tasks. It also allowed us to cross-train electricians and instrumentation technicians in the mechanics trade. During this operation we were able to perform the following training classes. SGT Matthews gave a class on how to set the fuel rack and adjust the injector timing on a MEP36A. SSG Call gave a class on how to calibrate pressure gauges using a dead weight tester. Other METL related tasks are outlined in ANNEX I.

3. **DISCUSSION:**

3.1. **GENERAL:** Upon arrival at Ft. Gordon on the 19th of January, we performed an inbrief with Mr. Pavliscsak. Then we proceeded to the power plant and performed an inventory of the requested parts.

3.2. The turbocharger on Unit 2-1 was making loud noises when load was added and during cool down. The turbocharger is used to compress the intake air, with the use of the exhaust gasses. This action makes the engine more efficient. A number of things can effect the turbocharger: i.e.. Restricted air intake filters, insufficient cooling and improper timing. When Unit 2-1 was inspected we observed that the aftercoolers were filled with sludge and SSG Alison found an injector rod that was broken. After the exhaust gaskets were changed, aftercoolers were flushed and the injector rod was replace the unit was load tested and no noise was heard.

3.3. The turbocharger on Unit 2-2 had a black substance leaking out of the air intake horn. After the horn was removed a rubber gasket was identified as the problem. The correct gasket was installed after the rubber gasket was removed and the area cleaned.

3.4. The temperature in Unit 2-1 was in excess of 250 degrees as measured with a thermostat. After inspecting the unit, it was determined that the exhaust gaskets were not effective in keeping the exhaust gasses out of the engine room. After removing the heat shields we noticed that some of the gaskets were only partially intact and some bolts were missing. During disassemble of the exhaust expansion joints we noticed that they were cracked. Mr. Pavliscsak found a local merchant in Augusta that could repair them for a fraction of the replacement cost. The local merchant had a 48-hour turn around time. All expansion joints were fixed and replaced with new gaskets.

3.5. When starting the units it was noted that the exhaust dampers were not functioning properly. Lubricating the dampers and the addition of counterweights corrected .the problem.

3.6. The coffin covers on EMD's are notorious for leaking. Although you may not stop this leaking you can limit it by replacing the gaskets. Some of the gaskets on the coffin covers were made of cork and found to be brittle. Others were so flat that they gave no sealing effect what so ever. All gaskets were replaced and the tension on the latches was adjusted.

3.7. Engine standby temperature on Unit 1-3 was below normal, when compared to the other units. When the immersion heater was removed for testing we noticed that there was a lot of scale build up. The immersion heater was found to have a bad element when tested. A replacement heater was ordered. One of the power plant operators will reinstall the new immersion heater.

3.8. After Unit 1-3 was identified as having a large scale and sludge build up, the other five units had their immersion heater removed, cleaned and tested also. Although the heating elements on these units tested good, they had a similar amount of sludge build up.

3.9. Engine safety devices were in question due to sticking fuel gauges and oil leaking from the , Low Water Positive Crankcase Pressure Detectors. The following engine protective devices were checked: 1. Oil and Fuel Gauges, 2. Low Water Positive Crankcase Pressure Detectors, 3. Overspeed Shut down.

1. GAUGES: I acquired a pressure test set from Fort Gordon Calibration Lab and tested all the oil and fuel pressure gauges. All oil pressure gauges were within tolerance, and three fuel gauges were found defective. See ANNEX H for test report.
2. LOW WATER POSITIVE CRANKCASE PRESSURE DETECTOR: The detectors were tested after leaks were repaired. During testing Unit 2-2 failed the Positive Crankcase Pressure test. The detector was removed and inspected. A number of the "O" rings were worn and need replaced.
3. OVERSPEED SHUTDOWN: After units were reassembled and load tested the Overspeed protective device was tested. All units except 1-3 was checked. Unit 1-3 had the coolant drained and was awaiting a new immersion heater. At the request of Mr. Pavliscsak the coolant was left out and one of the Mr. Doug , one of the power plant operators that assisted us on this mission, will perform the Overspeed check.

4. RECOMMENDATIONS:

4.1 Annual Inspection needs to be performed on these units prior to peak shaving beginning in the middle to late May. Two of the units are starting to knock, and if they don't have their timing adjusted more problems will occur. The new governors are to be installed sometime in the spring, I suggest that the annual inspection be completed prior to or during the governor upgrade. Another problem that needs to be addressed is the voltage swing problem. Right now the technicians can judge the swing and bring the units on line, if the problem keeps getting worse damage to the equipment or personal injury could result.

4.2 Flushing and changing the coolant in all six units would help prevent further deterioration of cooling system and associated components. Last summer Unit 1-1 through 1-3 kept going off line due to over temperature fault. Flushing and changing the coolant would help prevent that problem. Efficiency would be improved by keeping the unit cooler during operation. In the winter the units would maintain a constant temperature.

4.3 Changing the oil would also help in keeping the engines coolers. When the oil in Unit 2-1 was inspected, we noticed that their was a lot of contaminates. The Units at Fort Gordon originally had 50 weight oil, over the years 15W40 has been added. The manufacture, of these plants, and the AOAP lab discourage against mixing different weight oils. I noticed looking at the AOAP reports that the viscosity check for most of these units failed back in September 1997.

4.4 The technicians that work at the Ft. Gordon Power Plant have only had a one hour block of instruction on how to run the plant. I recommend that a formal class be given. I suggest the EMD refresher training that is given at Ft. Belvoir, VA. This class would increase the level of confidence and expertise of the technicians. The technicians already perform some of the mechanical and electrical maintenance.

4.5 When time will allow, the technicians perform maintenance on the power plant. I recommend a maintenance day be incorporated. This maintenance day could be as much as one day a week or as little as one half a day every two weeks. Currently every generator gets started and ran under load every two weeks, so this maintenance day would be used to perform minor maintenance, such as fixing oil leaks.

4.6 The reports that is currently being received from the AOAP lab is insufficient. The report only gives a NORMAL or ABNORMAL reading. The technicians have no way of using the AOAP report to help monitor their generators. After looking at the AOAP history report on the generators, I noticed that not all the information was filled in. I called Ms Rhonda Jones at the Oil Analysis Lab and she informed me that with some more information they could better monitor these generators. Ms. Jones can be reached at DSN 791-6248.

4.7 During this mission some of the bolts securing the heat shield were broken off. Some easy-outs need to be acquired and the broken bolts removed and replaced with new ones. There is no immediate danger of the heat shields falling but when time is available these bolts need to be removed and replaced.

5. ANNEX LISTING

A. Operation Order
B. List of Personnel Assigned
C. Risk Assessment
D. Cost Assessment
E. Lessons Learned
F. List of Faults
G. Photographs
H. Test Reports
I. Mission Essential Tasks
J. Distribution

Date 28 Feb 99
PROJECT NCOIC SIGNATURE

Date 28 Feb 99
TEAM CHIEF/NCOIC

Date 5 Mar 99
COMPANY COMMANDER/1SG

5.13.2 Plant # 2, unit # 2: Piston # 6 is showing excessive carbon buildup and light scoring.

Recommendation: Monitor and recheck next inspection.

5.14 UPPER DECK SECTIONS:

5.14.1 Several injectors were found out of timing throughout the plant. All deficiencies were corrected on the spot.

Recommendation: None.

5.14.2 Several cylinder head to piston clearance readings were out of tolerance. The manufacturer recommends no more than .005 inch difference between front and rear of each piston. See all clearances as part of annex C

Recommendation: Check again next inspection.

5.14.3 Firing pressures were taken on all units. See results in annex C.

5.15: PLANT MODIFICATIONS:

5.15.1: The EMCS personnel are interested in using the plant for backup power to certain critical loads on Ft. Gordon. They are in the process of moving certain feeders to an emergency buss that is now where the plant is tied in. This use would require the units to be maintained in an automatic standby mode.

Recommendation: Their system will require several modifications before this can be accomplished. An automatic transfer system will have to be installed. Prime Power loan program engineers may be able to assist with the details of this project.

5.15.2: EMCS personnel are concerned with the reliability of the battery start system. During the inspection the battery bank on plant # 2 only provided enough cranking for three starts. This may create a problem if the units fail to start the first time.

Recommendation: Have Prime Power loan program engineers investigate the possibility of a rectifier system large enough to be used in the lack of battery power. EMCS personnel have committed to providing a backup generator specifically for this purpose.

6.0 CONCLUSIONS:

6.1 The overall appearance and condition of this plant is excellent. The findings above reflect very minor problems for an inspection of this detail. With no trip report available from the installation there is no data for comparison and no record of the condition of the plant at the time of installation. The installation trip report should be located and maintained with follow up inspections. Use the data in each report to begin a historical log for this plant. Maintain all records for comparison by next inspection teams.

6.2 SSG Smith is doing an excellent job with the maintenance at this plant. The benefit of having a 52E available at this plant can't be over emphasized. The EMCS personnel are extremely

RECOMMENDATIONS

1. TECHNICIANS NEED FORMAL TRAINING.
2. NEED TO ESTABLISH A MAINTENANCE DAY.
3. UNITS NEED TO BE STEAM CLEANED.
4. UNITS NEED TO HAVE COOLANT SYSTEMS FLUSHED AND NEW COOLANT ADDED.
5. UNITS NEED TO HAVE ANNUAL SERVICE DONE BE FORE PEAK SHAVING.
   NEED TO LOOK @ 9% OF BOLTS REPLACED
6. ALL BROKEN HEAT SHEILD BOLTS BE TAPPED OUT AND REPLACED.
7. UNITS NEED OIL CHANGE.
8. FENCE NEEDS TO HAVE GROUND MOVED TO POLE NOT BARBED WIRE.

SHORTCOMINGS

1. EXHAUST GASKETS ON UNIT 2-1 WERE ONLY PARTIAL INTACT.
2. UNIT 2-3 HAD BOLTS MISSING ON EXHAUST FLANGES.
3. COFFIN COVERS HAD THE WRONG GASKETS, SOME HAD CORK SECURED BY GLUE, AND RUBBER SO HARD THAT IT SNAPPED LIKE A STICK.
4. OIL IN ~~UNIT 2-1~~ ALL NEEDS REPLACED.
5. COOLANT SYSTEM IN ALL UNITS NEED TO BE FLUSHED.
6. COOLANT IN ALL UNITS NEED TO BE REPLACED.
7. UNIT 2-2 PCP WAS FOUND DEFECTIVE.
   POST CRANKCASE PRESSURE

VOLT REG

SYNCH SCOPE

pleased with his performance and have expressed a desire to have a 52E slot allocated for their TDA. Investigate the possibilities of getting 52E positions at loan program asset sites. The benefit would far outweigh the expense.

6.3 Many tools required for the performance of inspections and maintenance on these units are missing. The tools should be either found or re-acquired before the next inspection.

7.0 **ANNEXES:**

ANNEX A	Annual Inspection checklist.
ANNEX B	Tests performed and tools required list.
ANNEX C	Engine data.
ANNEX D	Circuit breaker and generator test data sheets.
ANNEX E	Hazard analysis.
ANNEX F	Project tasker/control #.
ANNEX G	Man-hour report.
ANNEX H	EMD Tool shortages.

EDDIE LADNIER
SSG (P), USA
Project NCOIC

GERALD BOORTZ
CW3, USA
Power Station Technician

GWEN E. BAKER
CPT, EN
Commanding

DEPARTMENT OF THE ARMY
3rd PLATOON, B COMPANY
249th ENGINEER BATTALION (PRIME POWER)
FORT BENNING, GEORGIA 31905

AFTER ACTION REPORT

EMD ANNUAL INSPECTION
FT. GORDON, GA
17-29 MARCH 1996

DEPARTMENT OF THE ARMY
3rd Plt. B Co. 249th Engineer Battalion
(PRIME POWER)
Ft. Benning, GA 31905

CECPW-MB-C

01 APRIL 1996

SUBJECT: After Action Report, Annual Generator Inspection, Ft. Gordon, GA.

PROJECT NUMBER: 96BP04

DATES OF VISIT: 17-29 March 1996

SUBMITTED BY: SSG Ladnier

PERSONS CONTACTED:

Mr. Curtis Ogelsby, DPW Energy Branch, 706-791-4243
Mr. Bob Calhoun, Johnson Controls World Services Inc. 706-787-4601
Mr. James Pavliscsak, Mech. Eng. Tech, Chief EMCS, DSN 780-6423
SSG Duane Smith, 52E, HHC 201st MI Battalion, DSN 780-7718
MSG Studebaker, Heavy Maintenance Team, Ft. Belvoir, DSN 656-3002
SFC Sweeney, Prime Power School, Ft. Belvoir, DSN 654-1508
SFC Gouth, Operators Training, Ft. Belvoir, DSN 656-3203
Mr. Mike Hunter, Loan Program Manager, DSN 654-1474

1.0 PURPOSE: This report is intended to document the findings and recommendations developed as a result of an Annual Generator Inspection of two 4.5MW EMD power plants currently leased to the Department of Public Works at Ft. Gordon, GA.

2.0 BACKGROUND: Two 4.5 MW EMD power plants were installed at Ft. Gordon in July 1995 by 2nd Plt, A Co. 249th Engineer Battalion. The units positioned on Ft. Gordon are currently operated and maintained by the DPW Energy Management Control Systems under the provisions of the Prime Power Loan Program.

3.0 PROJECT SCOPE:

3.1 Perform Annual Inspection on two 4.5 MW EMD power plants.

3.2 Perform a generator installation for use as backup power at Eisenhower Army Hospital.

3.3 Perform pre-site data gathering for future facility maintenance scheduled for April - May time frame.

4.0 DISCUSSION:

4.1 Coordination for this inspection was made telephonically with above listed personnel. The tools required to perform an EMD inspection are normally shipped with the plant. However, they are not at Ft. Gordon at this time. There has been a mix-up of some sort as to the items reported sent by Heavy Maintenance at Ft. Belvoir and what was received at Ft. Gordon (see lists attached as annex H). The required tools were obtained from the Prime Power Operator training and Heavy Maintenance platoon.

4.2 The inspection of the two EMD power plants was based on a copy of an EMD Annual Inspection checklist from US Army Prime Power Program Power Generation and Transmission System Assets (copy attached as annex A). The checklist provides a base of inspection both mechanically and electrically, with enough detail to provide a good overview of the general condition of the plant. The results should be maintained as a baseline for future inspections and if used properly may be useful in predicting future problems.

4.3 The overall condition of this plant is good. The personnel responsible for the operation and maintenance of the plant are doing an excellent job. Special recognition should be given to SSG Duane Smith, a 52E assigned to the 201st MI Battalion at Ft. Gordon, for the work he has done and the assistance he has provided to the EMCS. The findings and recommendations in section 5 focus only on the shortcomings of the inspection. These findings should not be misunderstood to reflect a negative impression of the maintenance program at this plant site.

4.4 A secondary mission was incorporated into this project for scheduling convenience. Scheduled maintenance of a 2.1 MW EMD generator at the hospital emergency generator plant necessitated the deployment of a 750 KW heavy weight Fermont generator from 3rd Plt at Ft. Benning as a backup to the hospitals emergency bus. The generator was inspected, tested, and packed, prior to the departure of the inspection team to Ft. Gordon. The unit was shipped out by SFC Mann and MSG Helphinstine on 20 March and arrived at Ft. Gordon on 21 March. The unit was downloaded under supervision of Prime Power personnel at Ft. Gordon for the above-mentioned Annual Inspection. The generator was connected to an existing air switch at the back corner of Bldg 310. Shore power was provided by Johnson Controls exterior electricians by connecting a 480 to 208 transformer to the 480 volt power source of an unused pump. (Note- the 208V is not the recommended shore power voltage for the heavy weight but it works) The automatic start signal was taken from the 2.1MW EMD control cabinet. The load cables from the 2.1MW EMD had to be removed from the circuit at the back of the buss cubicle in the generator room to isolate it from our generator. External fuel supply was provided by Johnson Controls personnel. The phasing was checked with a 600 volt phase sequence meter at the heavyweights PT fuses and in the building at the 480/208 transformer. The phasing is A-B-C on both. The phases were not marked at the air switch and had to be traced prior to connection. Final testing of phase sequence was performed by turning everything in the building off except one pump and starting the generator. The 750 KW generator was placed into automatic standby position on 25 March until 3 April. Johnson Controls personnel will disconnect the power cables and fuel lines when the 2.1 MW EMD is restored to standby status. Prime Power personnel will return to Ft. Gordon on 15 April to ship the generator back to Ft. Benning.

5.0 FINDINGS AND RECOMMENDATIONS:

5.1 GENERAL CONDITION AND APPEARANCE: The plants are in good condition. Fire and safety materials are present and maintained. Adequate cleaning supplies are on hand. Overall appearance of the units is excellent.

5.2 OPERATIONS:

5.2.1 Records and Reports:

a. There are no records of the plant installation and testing at the plant site.
Recommendation: Have A Co. 249th Engr. Bn provide a copy of the installation trip report and acceptance test results and maintain them at the plant for future reference.

b. Operators were trained by Prime Power personnel after completion of the plant installation in July 1995. There are no records at the plant of any training conducted.
Recommendation: Provide training records of operators present and future.

c. There are no operating procedures posted at the plant.
Recommendation: An SOP should be provided and should include operating procedures that cover any system peculiarities. It should include emergency procedures and phone numbers.

d. There are log books on hand for each plant and each unit. The entries in the log books are vague. The maintenance records on hand are being maintained well.
Recommendation: A standardized procedure for filling out log books should be incorporated into the above-mentioned SOP. It should include as a minimum; plant status, engine hours, KW hours, circuit breaker trips, engine starts and shutdowns.

e. Due to personnel shortages maintenance or operations are often performed with only one person in the plant.
Recommendation: For safety reasons a two-person crew should be present on the site any time work is being performed. This practice should be included in the SOP.

5.3 CONTROL SKIDS AND SWITCHGEAR:

5.3.1 Control Skid:

a. Battery maintenance is being performed monthly and records are being kept. There is, however, no pilot cell marked on each battery for weekly testing.
Recommendation: Mark the weakest cell of each battery with a white cap and check this cell (the pilot cell) weekly in addition to the monthly battery maintenance.

b. The ammeter on the battery charger in plant 1 is broken.
Recommendation: Replace the meter. Part # 8263858, FSN 6625-00-103-8116

c. The battery bank in plant #1 maintains a low specific gravity. The voltage is being maintained at the proper level and the batteries seem to have sufficient cranking power for normal operations.

Recommendation: Monitor closely.

5.3.2 Switchgear: The deficiencies noted in this section all appear to have been in place prior to the installation of this plant at Ft. Gordon. The installation trip report should be checked to verify these findings. These breakers should have been reconditioned prior to shipment. The breakers electrically, are in good condition but failure to correct the following deficiencies will result in future problems possibly of catastrophic proportions. (Also see circuit breaker test data sheets included as annex D.)

a. Plant # 1 Load tie breaker: B phase main stationary contact is pitted.
Recommendation: Monitor circuit breaker trips and check again next year.

b. Plant # 1, Unit # 1:

* Trip counter not operational due to missing spring.
* A phase puffer tube broke. Replacement made by SSG Smith.
* B phase puffer tube appears melted. Replacement made by SSG Smith.
* B phase stationary arcing contact ceramic is chipped.
* The contact stroke is out of mfr recommended tolerance but cannot be adjusted any further.

Recommendation: Replace trip counter spring and puffer tubes. Monitor breaker and retest in one year.

c. Plant # 1, Unit # 2:

* Trip counter not operational due to missing spring.
* A phase stationary arcing contact ceramic is broke. It was glued together as a temporary fix..
* C phase arc chute is cracked.
* C phase stationary arcing contact ceramic is broke.
* The data plate is missing from this breaker.

Recommendation: Replace trip counter spring and A phase contact ceramic. Monitor breaker and retest in one year.

d. Plant # 1, Unit # 3:

* Puffer tube manifold is broken at the hose connection. It has been glued back together as a temporary fix.

Recommendation: Replace manifold.

e. Plant # 2 Load tie breaker: Incorrect literature on hand for this breaker.
Recommendation: Acquire correct literature.

f. Plant # 2, Unit # 1:

* Circuit breaker trip counter missing spring, non-op.

* B and C phases bottom ceramic barrier plates cracked.
* B phase rear arc chute cover cracked at tilt pin.

Recommendation: Replace all cracked and missing parts.

g. Plant # 2, Unit # 2:

* A and B phase stationary arc contact ceramic is chipped.
* Trip counter spring is missing.
* B phase arc chute panel is cracked and broken at rear tilt pin.
* All rear phase barrier brackets are broken.
* A phase bottom ceramic barrier plate at entrance of arc chute is cracked.

Recommendation: Replace trip counter spring, B phase arc chute panel and A phase ceramic barrier plate. Repair or replace barrier brackets.

h. Plant # 2, Unit # 3:

* A phase stationary arcing contact ceramic is chipped.
* C phase puffer tube is broken. Replacement made by SSG Smith.
* A and C phase arc chutes are cracked.

Recommendation: Replace puffer tube with proper part. Monitor breaker and retest in one year.

5.4 MAIN GENERATOR:(See also annex D)

5.4.1 Plant # 2, Unit # 1: Out board upper brush is down to 1-1/4 inch. This is above the one inch minimum but is over one half inch shorter than the remaining three brushes.

Recommendation: Monitor brush closely. Replace complete set of four when length gets down to one inch. Part # 8283004, FSN 5977-00-816-1037

5.5 COOLING SYSTEMS:

5.5.1 The coolant in all units has a brown sludge floating on top. It is thick enough in some units to cloud the sight glass completely.

Recommendation: Flush and filter or replace coolant. Note: A work order is in for the correction of this fault.

5.5.2 Plant # 1, Unit # 1: Missing one fan drive belt.

Recommendation: Monitor condition of remaining belts. Replace as a set when condition warrants or convenient. Part # 8301757, FSN 3030-00-104-6474

5.5.3 Plant # 2, Unit # 2: Lube oil cooler has oil seepage at the top right corner.

Recommendation: Tighten and monitor or replace gasket. Part # 8212576, FSN 5330-00-855-9864

5.6 EXHAUST SYSTEM:

5.6.1 Damper remains open on all units during shutdown exposing unit to effects of weather.

Recommendation: Modify system to alleviate the problem. Maybe add an electric motor for opening or closing the damper that operates when unit is started or stopped. Another idea proposed is to extend the exhaust pipe through the roof and add a flapper similar to the Fermont exhaust system. This may be something for loan program personnel to investigate.

5.7 TURBOCHARGER:

5.7.1 Plant # 1, Unit # 1: ClassII leak at outlet pipe of auxiliary turbocharger filter.
Recommendation: Tighten and monitor. If still leaking, replace gasket. Part #8306502, FSN 5330-00-914-7036

5.7.2 Plant # 1, Unit # 3: Class III leak at circulating oil pump.
Recommendation: Rebuild pump. (Replace seals)Part # 8348870 and 8294131

5.7.3 Plant # 2, Unit # 3: Class I leak at oil circulating pump.
Recommendation: Monitor leak.

5.8 AIR FILTER SYSTEM:

5.8.1 The oil bath filters oil level were found low on all units. The level was corrected immediately by SSG Smith.

Recommendation: Maintain level of oil bath filters to prevent future problems.

5.9 FUEL SYSTEM:

5.9.1 The fuel pumps on the pumping units are not being utilized. The plant is provided fuel from the boiler plant adjacent to the plant site.

5.9.2 The fuel racks on units 1-1, 2-1, 2-2, and 2-3 were found out of adjustment. They appear to have been adjusted while the engine was cold. All fuel racks were adjusted after bringing the units to operating temperatures.

Recommendation: For future installations and inspections ensure personnel perform adjustments with the unit in the proper operating condition.

5.10 LUBE OIL SYSTEM:

5.10.1 Plant # 2, unit # 2: The unit is showing signs of oil back feeding through the prelube system causing excessive oil in the cylinder. The result is excess oil blown out when the unit is barred over. This problem will also hinder starting the unit if the need arises to crank without barring over. To remedy the excess oil the plant personnel are not running the soakback

system. SSG Smith has been working on this problem since the unit was installed. He has been in contact with loan program personnel, the heavy maintenance platoon, and Tooele personnel trying to solve the problem.

Recommendation: Continue working with Tooele personnel and involve heavy maintenance personnel, if necessary, to eliminate the leak.

5.10.2 Plant # 1, unit # 2: The pipe union at the "Y" strainer has a class II leak.
Recommendation: Tighten or remove, clean and replace the union.

5.10.3 Plant # 1, unit # 3: There is a class II leak at the scavaging pump.
Recommendation: Replace gasket. Part # 8029498

5.11 GOVERNOR PUMP AND DRIVE:

5.11.1 Plant # 1, unit # 1: Governor oil level too high.
Recommendation: Maintain oil at proper level. Excess oil may lead to leaks.

5.11.2 Plant # 2, unit # 2: Governor is leaking oil.
Recommendation: Replace seal. Part # 8149695

5.12 CRANKCASE:

5.12.1 Several cylinder liners were found with a slight rust scale near the bottom. This is n indication of water in the oil. There was no evidence of excessive water leaks and the problem s scattered throughout the plant. The plant is enrolled in the Army Oil Analysis Program. The last sample was taken March 1996 and the results are not back.

Recommendation: Check results of AOAP. If water is found present change the oil and investigate the cause. Pay particular attention to unit # 2-2.

5.12.2 Several piston cooling tubes were found out of alignment. The deficiencies were corrected on the spot.

Recommendation: None.

5.12.3 Plant # 2, unit # 1: Minor scoring at bottom of # 15 cylinder liner.
Recommendation: Monitor and recheck next inspection.

5.12.4 Plant # 2, unit # 3: Minor scoring at bottom of # 15 cylinder liner.
Recommendation: Monitor and recheck next inspection.

5.13 POWER ASSEMBLIES:

5.13.1 Plant # 1, unit # 1: Light scarring on piston # 16.
Recommendation: Monitor and recheck next inspection.

SAFETY

Single Source Safety Program Document
United States Army Signal Center and Fort Gordon
Fort Gordon, Georgia 30905-5000

5 March 1998

Safety

FORT GORDON SAFETY PROGRAM

Summary. This document provides policy, defines responsibility, prescribes criteria, and outlines guidance for the development, implementation and evaluation of the Fort Gordon Accident Prevention program.

Applicability. This document applies to all elements of the U.S. Army Signal Center and Fort Gordon (USASC&FG), to tenant activities, and to U.S. Army Reserve and Army National Guard units supported by Fort Gordon. Tenant Commands may establish host tenant agreements to cover specific issues necessary to implement their accident prevention programs in accordance with requirements unique to their MACOMs.

Supplementation. Supplementation of this document is prohibited without prior approval from ATZH-PSB.

Suggested improvements. The proponent of this document is the Signal Branch Safety Division, Directorate of Public Safety, USASC&FG. Users may send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) through channels to Commander, USASC&FG, ATTN: ATZH-PSB, Fort Gordon, GA 30905-5000.

Immediate Notification	4-4	19
Accident Investigation Boards	4-5	20
Responsibilities	4-6	21
Findings and Recommendations	4-7	23
Collateral Investigations under Provisions of AR 15-6	4-8	23

Chapter 5
Army Motor Vehicle/Privately Owned Vehicle Accident Prevention Program

General	5-1	24
Driver Qualifying, Testing, and Licensing	5-2	24
Accident Avoidance Training	5-3	24
Unsafe Operations	5-4	24
Preholiday POV Inspections	5-5	24
DA Form 348, Documentation	5-6	25
Safety Belts	5--7	25
Motorcycle Training and Operation	5-8	26
Maximum Driving Time	5-9	27
Bicycle Helmets	5-10	27

Chapter 6
Lightning Protection

Troop Precautions	6-1	28
Protective Measures	6-2	28
Lightning Casualties	6-3	29

Chapter 7
Heat Injury Prevention Program

General	7-1	30
Responsibilities	7-2	30
Heat Injuries	7-3	31
Prevention of Heat Injuries	7-4	31
Wet Bulb Globe Thermometer Index	7-5	32
Limitations of WBGT	7-6	33
Personnel Working Inside	7-7	33

Chapter 8

Motor Pool and Maintenance Areas	13-1	50
Precautions Against Carbon Monoxide Poisoning	13-2	52
Personal Safety Precautions	13-3	53
Weapons Safety	13-4	53
Electrical Hazards	13-5	54
Machine Safety	13-6	54
Tripping Hazards	13-7	54
Severe Weather Precautions	13-8	54
Hazardous Training	13-9	55
Lockout/Tagout Procedures	13-10	55

Chapter 14
Confined Space Entry Program

General	14-1	58
Responsibilities	14-2	58
Entry and Rescue	14-3	61
Permit System	14-4	62
Medical Examinations	14-5	64
Training	14-6	65
Testing and Monitoring	14-7	66
Labelling and Posting	14-8	67
Personal Protective Equipment and Clothing	14-9	67
Work Practices	14-10	71

Chapter 15
Branch Safety

General	15-1	77
Responsibilities	15-2	77

Policy for Hazardous Material	20-3	103
Labeling	20-4	104
Transportation Labels	20-5	104
Alternative Labeling	20-6	105
Training Requirements	20-7	106
Documentation of Training	20-8	106

Chapter 21
Bloodborne Pathogens Exposure Control Plan

Purpose	21-1	107
Responsibilities	21-2	107
Program Requirements	21-3	107

Chapter 22
Risk Management

Risk Management	22-1	115

References	A-1	122
Definitions	B-1	125
Abbreviations	C-1	132

(2) Provide the Installation Safety and Occupational Health Manager with a daily summary of accident information collected through Military Police channels, (for example, Military Police (MP) blotters and traffic accident reports).

(3) Advise the Installation Safety and Occupational Health Manager of adverse road conditions.

d. The Directorate of Public Works (DPW) will:

(1) Coordinate DA Forms 4283, Facilities Work Requests, with the Signal Branch Safety Division (SBSD) for identification of safety related deficiencies.

(2) Consolidate deficiencies, where correction exceeds local capability, into projects for Department of Army funding.

(3) Correct without delay work requests identified by the SBSD as immediately dangerous to life and health (IDLH).

(4) Provide the SBSD and PMS a monthly status report identifying work orders of safety or health concern, to include correction status.

(5) Coordination with the SBSD and PMS in the design, construction, and renovation of new or existing facilities to ensure compliance with OSHA and other applicable standards.

(6) Provide the SBSD with DA Form 461-5, Vehicle Classification Inspection, and SF 91, Operator's Report of Vehicle Accident.

(7) Ensure that DD Forms 1348-6, non-NSN Requisition, or DA Forms 3953, Purchase Request and Commitment, for all hazardous chemicals/materials include the required information IAW AR 700-141.

e. The Dwight David Eisenhower Army Medical Center (DDEAMC) will:

(1) Perform those functions outlined in AR 40-5, Preventive Medicine Services.

(2) Upon request from the SBSD, support accident investigations to include evaluation of human and environmental factors that contributed to the accident.

(3) Provide the SBSD a copy daily of the Admissions and Disposition Sheets.

(3) Assist in the enforcement of contract safety requirements through close coordination with the SBSD, DPW inspectors, Contracting Officer's Representative (COR), and contract administrators.

(4) Include in each contract or purchase order for hazardous material, a requirement for the supplier to give Material Safety Data Sheets (MSDSs), to the Contracting Officer 5 days before shipment of the material. A copy of the MSDSs will be forwarded to the SBSD.

h. Commanders and directors will:

(1) Implement a comprehensive safety program within their organization, IAW AR 385-10 and this document.

(2) Publicize channels for reporting unsafe and unhealthful working conditions, emphasizing personal responsibility for making such reports.

(3) Establish procedures to ensure that all job descriptions adequately reflect all safety responsibilities and requirement for the position.

(4) Include safety practices and physical standards in all directives, standing operating procedures (SOPs), and training doctrine. Prepare a comprehensive SOP for each hazardous operation (for example, range operations, vehicle operations, welding, tire changing, use of simulators, Field Training Exercise (FTX) operations, battery charging and storage, bivouac areas, fuel storage/refueling operations, storage and handling of ammunition and explosives, loading, storage, and handling of chemicals, communications and electronics, spray painting, etc.). SOPs will contain details of operation procedures, emergency procedures, training received, and required inspections as well as other applicable information.

(5) Develop and implement a comprehensive accident prevention plan encompassing all operations and activities under their control. Establish specific written safety goals for their organizations.

(6) Include safety objectives in all civilian supervisors' performance plans, officer evaluation support forms, evaluation report system. Samples are available from the SBSD. Objectives need not be stand alone elements.

(7) Receive a safety orientation from the SBSD within 14 calendar days of assignment to a unit or directorate.

(3) Procure, maintain in sanitary working condition, and require use of PCE and devices necessary to protect employees. This includes the training of the employees.

(4) Report unsafe conditions in the workplace to the SBSD. When external support (Engineer, Logistics, etc.) is needed to correct a deficiency, initiate the necessary corrective action (DA Form 4283, Facilities Engineering Work Request, telephone call to the DPW Service Order Desk, etc.) and inform the SBSD.

(5) Promptly evaluate and take action, as required, to correct hazards reported by employees or identified through accident investigation. Reprisal action will not be initiated or supported against employees who identify hazards, raise safety concerns, or engage in authorized safety and occupational health activities.

(6) Orient all newly assigned personnel concerning the hazards inherent in their job and work environment. Conduct regular training concerning specialized and general hazards in the workplace and methods for avoiding accidents.

(7) Report all accidents promptly, IAW chapters 4 and 5, AR 385-40 and the Guide for Supervisors, Federal Employees Compensation Act (FECA) published by DHR.

(8) Ensure that injured employees report to the Emergency Room of Dwight David Eisenhower Army Medical Center (DDEAMC)for evaluation of the injury before seeking off post treatment, IAW Guide for Supervisors, Federal Employees Compensation Act (FECA) published by DHR. Serious injuries may be treated and stabilized at DDEAMC if medically necessary.

(9) Ensure that job descriptions accurately describe the hazards to which an employee may be exposed and all physical requirements for the position. All personnel actions involving these positions should indicate the hazards.

(10) Ensure that all employees receive required medical surveillance and pre-employment and pre-retirement physicals.

j. Collateral Duty Safety Officers/NCOs will:

(1) Become familiar with Army safety regulations, and safety aspects included in SOPs, field manuals, technical manuals, etc. Attend training class at the SBSD as soon as possible following their appointment.

(2) Interpret safety policies and procedures for their unit commander.

CHAPTER 2
COUNCILS/COMMITTEES AND TRAINING REQUIREMENTS

2-1. General.

The Fort Gordon Safety and Occupational Health Advisory Council (SOHAC), was established to enhance the accident prevention program, unit safety committees, and training programs for personnel.

2-2. Safety and Occupational Health Advisory Council. The SOHAC will meet to review the accident experience of the command and suggest countermeasures for implementation. Membership will consist of the Garrison Commander and directors or their representatives; commandants, commanders, directors or assigned representatives of tenant activities; union representatives, the Industrial Hygienist, Occupational Health Supervisor; Chief of Preventive Medicine Activity; Aviation Safety Officer; Range Safety Officer and Environmental Engineer. The council meeting will be chaired by the Garrison Commander. SBSD is responsible for planning meetings and providing council members with appropriate information. Each member of the council will be notified of the time and date of the meeting. Special meetings should be called when critical and urgent safety problems arise. The SBSD will forward a copy of the minutes to all council members.

2-3. Collateral Duty Safety Officer/NCO Course.

a. The SBSD will conduct the Collateral Duty Safety Officer/NCO Course for military and civilian safety officers/NCOs.

b. All personnel assigned safety officer/NCO duties will attend the course. Requests for attendance will be submitted to the SBSD, ATTN: ATZH-PSB.

2-4. Safety Briefing. Directors/commanders will report to the SBSD for orientation within 14 days of assignment. All reserve unit safety officers participating in annual training at Fort Gordon will receive a briefing by SBSD personnel.

2-5. Safety Training Requirements.

a. The SBSD staff will assist DHR in conducting the safety portion of the new employee orientation sponsored by the DHR.

CHAPTER 3
HAZARD IDENTIFICATION

3-1. Inspections. Safety inspections must be conducted at all levels. Minimum requirements for safety inspections are as follows:

a. All personnel will, during the performance of their normal duties, survey their operations, activities, facilities, equipment, and procedures for safety hazards and initiate or recommend necessary action to eliminate any hazards.

b. SBSD personnel will inspect work sites annually using the Standard Army Safety and Occupational Health Inspection procedures described in AR 385-10. High hazard areas may be surveyed more frequently. Collateral duty safety officers will inspect office and classroom facilities. Inspections may be conducted with or without prior notification.

(1) A written report of deficiencies observed during the inspection will be provided to the commander/director of the activity inspected.

(2) The unit/activity inspected will be required to respond to the SBSD in writing concerning corrective action taken on each cited deficiency. Follow-up procedures must be established by the unit to ensure correction of each deficiency. A record of uncorrected deficiencies will remain in an active file and reviewed periodically until corrections are complete.

3-2. Abatement Plans.

a. DoD and the U.S. Army require an abatement plan for all violations in categories I - IIIB, requiring more than 30 days to correct. See AR 385-10 for procedures to follow.

b. Any risk assessment Code (RAC) I or II safety hazard that requires an engineer work request to correct will be forwarded through the SBSD by the activity responsible for correcting the problem. The SBSD will assign a priority to the work request and track the hazard.

3-3. Reports of Unsafe or Unhealthful Working Conditions.

a. Reports of unsafe or unhealthful working conditions should be handled at the operational level whenever possible to ensure timely correction. The following order should be followed whenever possible:

(1) Oral reports directly to the supervisor.

CHAPTER 4
INVESTIGATION/REPORTING OF USASC&FG ACCIDENTS AND CENTRALIZED ACCIDENT INVESTIGATION OF GROUND (CAIG) ACCIDENTS

4-1. General. The commander or supervisor directly responsible for the operation, materiel, or person(s) involved in an accident will ensure the preparation of the appropriate report on each accident IAW instructions in this document, Guide for Supervisors, Federal Employees Compensation Act (FECA), and AR 385-40. DA Form 285 will be forwarded to the SBSD not later than 21 calendar days following the date of the accident. Reports will be reviewed at each level of the unit, directorate, and activity chain of command. Major unit commanders/directors will sign block 66 of DA Form 285. Once installed, Fort Gordon organizations and all tenants will use the PC Safety portion of the Sustaining Base Information System (SBIS) Safety Installation Support Module, automated accident reporting system. This applies to all accidents ground or aviation.

4-2. Mileage Report. The Transportation Motor Pool will report monthly the number of miles driven by military/General Service Administration (GSA) vehicles to the SBSD not later than the fifth working day of the month.

4-3. Centralized Accident Investigation (Ground) (CAIG):

a. Class A or B on-duty accidents as defined in AR 385-40 will be investigated by a CAIG Board unless otherwise shown below.

b. Tenant activities that report to a MACOM other than TRADOC will comply with the requirements of that MACOM.

4-4. Immediate notification.

a. During duty hours, the first commander in the chain of command who becomes aware of a Class A or B accident will notify their next higher chain of command and the SBSD at extensions 791-3227/7233. During non-duty hours, they will notify the MP Operations Desk at extension 911.

b. During duty hours, the SBSD will notify the following agencies of any Class A or B accident:

(1) Safety Office of the involved MACOM.

c. The Installation Commander will appoint an accident investigation board for all on duty Class A and B ground accidents except those investigated by the U.S. Army Safety Center Accident Investigation Board and those involving Privately Owned Vehicle (POV) off-duty fatalities.

d. The accident investigation board will consist of three members. Additional persons may be appointed, as needed, for technical expertise. Members of the board will be selected from organizations other than the unit sustaining the accident. The president of the board will be a field grade officer.

e. The investigating board will investigate to determine the causes of the accident and make recommendations to prevent recurrence of a similar accident. A report format guide and format for appointment orders of CAIG boards may be obtained from the SBSD.

f. The board's written report will be kept confidential and will be handcarried by the president of the board to the major subordinate unit commander for technical review and further staff action. One copy of the report will be handcarried to the commander of the unit experiencing the accident. The commander of the unit experiencing the accident will complete DA Form 285, affix it to the report of investigation, and prepare a letter of transmittal that shows concurrence or non-concurrence and actions taken at their level to prevent similar accidents. Sufficient copies of the report will be made to allow the original and two copies to be forwarded to the SBSD and to provide a file copy for the major subordinate unit and the unit experiencing the accident. All DA Form 285's for Class A or B accidents will be reviewed and signed by the Commanding General, Deputy Commander or Chief of Staff, USASC&FG before being sent to the SBSD. Neither the written report or the DA Form 285 may be used in disciplinary action.

4-6. Responsibilities:

a. Commanders will initiate the following actions upon learning of a Class A or Class B accident:

(1) Ensure incidents or events listed in AR 190-40 are reported to the military police station.

(2) Coordinate all actions with appropriate authorities for accidents occurring in areas not under Army control.

(3) Identify witnesses and have initial statements prepared.

(3) Process information concerning the accident to HQ TRADOC.

(4) Coordinate the activities and reports prepared and submitted by all agencies concerning the accident, and send reports to the TRADOC Command Safety Office.

f. Adjutant General will:

(1) Publish orders for the investigation board to include those members from U.S. Army Safety Center.

(2) Provide for administrative support, to include office space with AUTOVON telephones, reproduction machine capability, and essential typing support.

g. DPW will provide logistical support including equipment to recover wreckage when it is authorized to be moved. Provisions will be made for a suitable and secure area for storage and technical inspection of the wreckage.

4-7. Findings and Recommendations. Responsible commanders will be briefed on tentative findings and recommendations at the conclusion of the field portion of the investigation.

4-8. Collateral Investigation under Provision of AR 15-6.

a. U.S. Army Safety Center investigation does not relieve commanders of the requirements to conduct a collateral board investigation IAW AR 15-6. The collateral board will not interview witnesses or disturb the accident site until authorized to do so by the U.S. Army Safety Center Accident Investigation Board President.

b The CAIG Program will not interfere with, impede, or delay Law Enforcement Agencies in the execution of regulatory responsibilities. IAW AR 195-2, Criminal Investigation Activities, Law Enforcement Agencies have priority to witness and accident site access.

(2) Tire tread depth.

(3) Lights, horn, and windshield wipers (operation and efficiency).

(4) Shock absorber performance.

c. All commanders will conduct a risk analysis of their personnel using the Accident Risk Assessment and Control Options - POV Programs (available from the IBSO) prior to holiday periods or any uptempo operations including the receipt of new personnel to thier organization. Copies of the resultant risk analysis will be maintained by the Commander within the individuals organizational file and updated at least every 90 days. Commanders will implement selected control measures from the Accident Assessment and Control Options program to reduce or maintain a low level of risk.

5-6. DA Form 348, Documentation. Include the following information as a minimum on DA Form 348:

a. Army Driver Improvement Program training and date.

b. Safety awards.

c. AMV accidents.

d. Civilian and military traffic points and citations.

e. Operator's training completed.

5-7. Safety Belts.

a. All personnel operating or riding as a passenger in an Army motor or GSA vehicle will wear manufacturer-installed safety belts whether on or off the installation. Individuals will not
ride in seats from which manufacturer-installed occupant restraints have been removed or rendered inoperative. The vehicle operator is responsible for informing passengers of the safety belt requirement. The senior occupant is responsible for ensuring enforcement. When it is not clear who the senior occupant is in the case of civilian employees, the driver is responsible for ensuring enforcement.

h. The use of headphones or earphones while driving a motorcycle or moped is prohibited.

5-9. Maximum Driving Time. Drivers will not be assigned to drive an AMV for more than 10 hours in any 24-hour time period. If more than 10 hours is needed to complete operations, a qualified assistant driver must be assigned to each vehicle. This same restriction is recommended for personnel operating their POVs.

5-10. Bicycle Helmets. DODI 6055.4, DoD Traffic Safety Program, emphasizes the mandatory use of approved (i.e., American National Standards Institute (ANSI) or the Snell Memorial Foundation) bicycle helmets by all personnel (including dependents) who ride bicycles on DoD installations. Workers operating bicycles in areas that require the use of ANSI-approved helmets (hard hats) for protection from falling and flying objects are allowed to use those helmets instead of approved bicycle helmets.

j. Personnel will dismount from dozers, graders, and all other metal machinery and move to a safe distance (for example, approximately 100 yards, depending upon terrain and conditions).

k. Personnel will not huddle together, if unavoidably caught in flat, open space, or on a bare hilltop. Instead, scatter to reduce the attraction of lightning to a mass of bodies.

l. Restrict the use of telephones, computers and other electrical devices.

6-3. Lightning Casualties. Immediate attention should be directed to those who may appearto be dead. Individuals who are stunned or dazed but moving about can usually recover alone, but should be examined by medical personnel as soon as possible. Those whose breathing and/orheartbeat have stopped need immediate attention. Should such a casualty occur, a qualified person should begin artificial respiration and cardiopulmonary resuscitation, treat for shock, and evacuate to the nearest hospital emergency room.

7-3. Heat Injuries

a. Heat Cramps - Heat cramps are not a life threatening condition. Muscle cramping in the major extremities and the abdomen is a sign of heat cramps. The pain associated with heat cramps can vary anywhere from mild discomfort to severe pain if the symptoms are not treated immediately and properly. An excessive loss of salt and water from the body does not directly cause heat cramps. The cramping that occurs is the result of an unequal distribution of salt and electrolytes inside the body. Resting the muscles, loosening tight clothing, and consuming at least 1 liter of water, the individual will usually be free of symptoms in about 30 minutes. Consuming salt tablets should be avoided.

b. Heat Exhaustion - The most common of the heat injuries is heat exhaustion. Heat exhaustion, unlike heat cramps, is the result of an excessive loss of both salt and water from the body. The condition itself is not life threatening, as long as, immediate and proper care is given to the individual. Early signs are fatigue, dizziness, disorientation, tingling in the hands and feet, nausea, vomiting, rapid pulse, rapid shallow breathing, and possibly unconsciousness. Proper treatment includes removal from the hot environment, loosening of tight clothing, and consumption of as much fluid as comfortable, if conscious. Never force fluids into an unconscious person, this can cause aspiration of fluid into the lungs resulting in suffocation.

c. Heat Stroke - Heat stroke is the most serious heat injuries. If not treated immediately and properly, death can occur within minutes. This condition is the later stage of heat exhaustion. Heat stroke is the result of the bodies cooling mechanism completely shutting down. There is no more water in the system for the body to perform sweating and evaporation, and as a result the blood vessels in the body can no longer supply the internal organs with an adequate amount of blood and they begin to die. Symptoms of heat stroke will include, massive headache, cherry red skin, fast thready pulse, increased respirations, cessation of sweating, and a high body temperature. Immediate transport to a hospital is crucial, and steps to lower the body temperature should be taken. Remove constricting clothing, apply cool, damp clothes to skin, fan the body. First response measures should not interfere with transport.

7-4. Prevention of Heat Injuries

a. Heat injuries can be avoided if personnel are properly informed and equipped before conducting any type of physical activity in hot climates. It is important to realize that all individuals will respond to heat stress in different manners. Before beginning to work in a hot environment, all personnel should be given a period of approximately 2 weeks in which they can begin to adjust to the heat. Work and rest schedules should be devised according to the temperatures to which individuals are exposed.

4) When the WBGT Index reaches 90 degrees F (CAT V), nonessential or non-mission work should be halted. All mandatory work should be attempted indoors if possible. Water consumption is crucial at all times, and clothing must be modified appropriately.

7-6. Limitations of WBGT. The WBGT is designed to produce environmental readings, personnel operating the unit must be aware that there are many factors that can affect the accuracy of the device, and that the device does have its limitations. The WBGT should be set up in an area that is as close to the actual training/work area as possible. The WBGT reading is applicable for a 1 mile radius. Buildings, cars, pavement, soil content, elevation, or bodies of water can affect readings. Care should be taken to avoid objects interfering with the WBGT readings. The kit should be 3 feet above the ground and allowed to stabilize for 20 minutes before reading.

7-7. Personnel Working Inside

a. Guidance for dismissal of employees in government buildings states: Except for extreme emergency conditions, group dismissals will be made only from such locations that exceed temperatures of 95 degrees F and 55% humidity or higher. Equivalent combinations of temperature and humidity are:

1) 96 degrees F - 52% humidity

2) 97 degrees F - 49% humidity

3) 98 degrees F - 45% humidity

4) 99 degrees F - 42% humidity

5) 100 degrees F - 38% humidity

b. When the temperature and humidity of monitored buildings interior reach the above readings, directors and commanders will transfer employees to duties in cooler facilities. When other facilities are not available, group dismissal may be approved. Before group dismissal, the commander of the activity must be notified and permission granted. DHR must be advised so that unions can be notified prior to dismissal of employees.

8-3. Prevention of Carbon Monoxide Overexposure. Commanders will ensure that:

a. Personnel are trained in the hazards of carbon monoxide as stated in TB Med 269, paragraph 7d.

b. Personnel know that the most common source of carbon monoxide is the exhaust from internal combustion engines and field heaters in confined spaces without adequate ventilation.

c. Personnel do not sleep in, on, or near fuel-powered vehicles while the engine, is running.

d. Provide adequate ventilation when engines, generators, battery chargers, and space heaters are operated.

e. Personnel are trained to recognize the warning signs and symptoms of carbon monoxide overexposure and how to perform emergency first aid treatment.

(2) Assist the responsible organization in taking appropriate personnel placement action when notified by PMS that an individual has sustained a hearing loss that will be aggravated by continued hazardous noise exposure.

c. The SBSD will:

(1) Coordinate with PMS to determine the existence of noise-hazardous areas. The SBSD will provide copies of Safety and Occupational Health Inspections to the PMS that identify potential noise hazard areas.

(2) Notify responsible supervisors and unit commanders of potential noise-hazardous areas and equipment within their area of responsibility.

(3) Monitor the use of hearing protective devices to assure compliance with established regulations.

d. DPW will:

(1) Provide and maintain caution signs with the color-coding and wording specified in AR 385-30.

(2) Whenever feasible, implement engineering controls to reduce hazardous noise levels. Personal protective equipment will not be an authorized substitute for effective engineering controls.

e. Unit Commanders will:

(1) Ensure military and DA civilian personnel working in noise identified hazardous areas receive annual audiometric evaluation and hearing protection such as earmuff and/or earplugs.

(2) Take appropriate action in personnel placement when notified by PMS of the results of medical examinations, evaluations, and surveys.

(3) Ensure personnel under their command who enter noise-hazardous areas wear hearing protection while in such an area.

(4) Ensure earplugs and earplug carrying cases are part of the duty uniform for all military personnel.

(4) Comply with recommendations of medical and safety personnel regarding protection of hearing and maintenance of hearing protection.

(5) Assure hearing protection is cleaned daily and sanitized regularly.

(11) Portable eye washes and showers will be inspected for proper operation monthly and the inspections will be documented.

(12) Label specific areas where the use of eye protection is required IAW AR 385-30.

b. The SBSD will:

(1) Advise commanders/directors on the Occupational Eye Protection Program.

(2) Promote compliance with the Occupational Eye Protection Program.

(3) Conduct surveys to ensure compliance with the Occupational Eye Protection Program.

(4) Inform commanders and supervisors of personnel who knowingly violate provisions of this program.

c. PMS will:

(1) Make eye examination appointments for civilian personnel working in eye hazardous areas requiring safety glasses.

(2) Assist the SBSD in promoting compliance with the Occupational Eye Protection Program and providing training on the effects of poor illumination, eye injury prevention, and the proper use, care, and storage of personal protection.

d. DDEAMC will:

(1) Provide eye examinations to military and civilian personnel who require safety glasses.

(2) Fit safety glasses.

e. Individuals will:

(1) Report for all scheduled medical examinations.

(2) Comply with the requirements for the use and maintenance of eye protection.

CHAPTER 11
RESPIRATORY PROTECTION PROGRAM

11-1. Protective Masks (M17/M17A1). This document does not regulate the wearing and use of tactical gas masks and equipment; however, gas masks will never be used in lieu of approved respirators.

11-2. Responsibilities.

a. The Directorate of Public Safety will:

(1) Maintain records of installation respirator users.

(2) Provide respirator user training.

(3) Provide respirator fit testing.

(4) The Fire Department will provide training for firefighters using RPE and respirator specialists in coordination with SBSD and PMS as outlined in AR 11-34.

b. Preventive Medicine Service:

(1) Perform functions outlined in AR 11-34, Army Respiratory Protection Program.

(2) Provide all required medical surveillance.

(3) Provide industrial hygiene support to the Respiratory Protection Program.

(4) Provide copies of the completed OP Form 99 for each respirator user to the employee's supervisor and the SBSD.

c. DHR will:

(1) Ensure that employees entering or exiting positions that supervisors have identified as requiring the use of respiratory protection equipment report to PMS for pre-placement and pre-exit medical evaluation.

(2) Assist the responsible organizations in taking appropriate personnel placement action, when notified by PMS that an individual is medically unsuitable for employment in an area requiring the use of respiratory protection equipment.

(6) Schedule the employee for training and fit testing by contacting the PMS at 787-2517. Employee must bring the form and respirator to the SBSD at the time scheduled for training.

(7) After training and fitting schedule the employee medical surveillance with the Occupational Health Clinic. Ensure that the employee takes the form and his respirator to the appointment. Supervisors will ensure that appointments are kept.

(8) Maintain records of employee respirator training.

(9) Ensure compressed air cylinders are tested and maintained IAW 29 CFR 1910.134.

(10) Ensure breathing air will meet at least the requirements of the specification for Grade D breathing air as described in ANSI/Compressed Gas Association Specification G-7.1 per 29 CFR 1910.134.

h. Employees will:

(1) Use in all required/appropriate situations all personal protective equipment assigned to them.

(2) Maintain all personal protective equipment in a clean and safe manner.

(3) Keep all appointments made for training or medical surveillance.

CHAPTER 12
USASC&FG SAFETY AWARDS

12-1. Unit/Activity/Division Safety Awards.

a. Units having completed 1 year without a recordable accident or having reduced their previous annual losses by 20 percent without a Class A or B accident and meeting the following criteria will be awarded the U.S. Army Certificate of Merit, DA Form 1118.

(1) Accident prevention measures are integrated into training operational practices, and procedures.

(2) There is evidence of strong command emphasis in accident prevention.

(3) Accident reporting procedures and records are maintained with the highest degree of accuracy and efficiency.

(4) The commander has emphasized and controlled conditions that cause heat/cold injuries, hearing loss, and accidental injuries from failure to use seat belts.

b. DA Form 1118, Certificate of Merit for Safety, will be awarded by battalion commanders to companies and directorate chiefs to divisions and shops for completing at least 1 year of outstanding accident prevention achievement. Additional or substitute awards in lieu of the DA Form 1118 are encouraged.

c. The award will be initiated, approved, and presented by the next higher level of command.

12-2. Safety Awards for Individuals.

a. Commanders and chiefs at all levels may present a U.S. Army Safety or in-house award to individuals who have at least one accident-free year. DA Form 348 will be reviewed annually for vehicle operators by supervisors and commanders for award purposes.

b. DA Forms 1119 and 1119-1 will be awarded for individual recognition for safe vehicle operating or work practices.

c. Military drivers and mechanics may be authorized the Driver or Mechanics Badge, qualifications are listed in AR 672-74.

CHAPTER 13
SPECIAL EMPHASIS AREAS

13-1. Motor Pool and Maintenance Areas.

a. SOPs will be prepared, published, and posted in the work area covering potential hazards. These will include but not limited to:

(1) Painting.

(2) Using grease racks and pits.

(3) Tire changing and repair.

(4) Battery shops.

(5) Welding.

(6) Servicing brake linings and clutch pads.

(7) Equipment maintenance.

(8) Respiratory protection.

(9) Hazard communication program.

(10) Lockout/Tagout Procedures.

(11) Hearing Protection

(12) Vision Protection

b. Traffic flow in and around buildings will be carefully planned with emphasis on eliminating points of traffic conflicts, blind corners, close clearances, etc. Parking or storage of vehicles will be avoided on sloping ground, inclines, and ramps when possible.

c. Grease pits (not in use) will be protected by chains or rope barriers around the areas or by pit covers.

m. Servicing brake linings and clutch disks may pose a serious hazard from airborne asbestos fibers. All such operations will be evaluated by the Industrial Hygienist and recommended protective measures will be followed.

n. All lifting devices, e.g., hoists, cranes, jacks, forklifts will be inspected, marked, load-tested, and maintained IAW requirements of TB 43-0142 and 29 CFR 1910.66.

o. Spray painting operations are prohibited inside buildings unless ventilation systems and/or paint spray booths are installed and approved by the SBSD and PMS.

13-2. Precautions Against carbon monoxide poisoning. Carbon monoxide, produced by incomplete combustion of fuels, is a serious hazard in areas where fuel-burning devices are used with insufficient ventilation. To prevent injuries from carbon monoxide:

a. Commanders and activity chiefs, as applicable, will:

(1) Request surveys by PMS to determine if a hazard from carbon monoxide exists within their areas of responsibility. Surveys should be made in shops, warehouses, and other closed areas where combustible fuel is used.

(2) Check Army vehicles, cranes, and construction equipment that use combustible fuel for defective exhaust systems.

(3) Acquaint personnel with the hazards of carbon monoxide.

b. Take precautions to safeguard personnel against carbon monoxide gas poisoning from main and auxiliary engine exhaust and fuel burning personnel heaters while operating, servicing, or being transported in motor vehicles.

c. Check vehicle exhaust systems for leaks monthly.

d. Ensure vehicle drivers do not leave parked vehicles with engines running to keep the vehicle or its occupants warm. If engine is required to operate communication equipment or for other mission related reasons, vehicles will be ventilated and operators will be required to dismount periodically.

c. Ensure firearms are not cleared or cleaned in areas where personnel congregate. A separate area will be provided for this purpose.

d. Ensure newly assigned personnel are aware of the requirement to register all personally owned firearms with the Provost Marshal before bringing them on the installation.

e. Additional requirements are contained in AR 190-11.

13-5. Electrical Hazards.

a. Only trained and qualified personnel will work on electrical transmission lines or electrically-powered equipment. Defective electrical wiring, and other electrical hazards should be reported to DPW for correction.

b. Flag poles, radio masts, and similar objects will not be erected or dismantled where the possibility of contact with energized circuits exists.

c. Power cords will not run through doorway, under carpeting, through holes in wall or ceiling or across aisles.

d. Extension cords will be used only for the connection of temporary portable equipment and will not be used in lieu of permanent wiring. Extension cords will not be attached to other extension cords.

e. Operators of military vehicles appropriately equipped must tie down vehicular antennas upon entering garrison area.

13-6. Machine Safety. Rings, other jewelry, loose clothing, and long unbound hair will not be worn when working around moving machinery, during vehicle maintenance or other hazardous industrial operations.

13-7. Tripping hazards. All aisles, passageways, stairs, and other walking surfaces will be free of tripping hazards.

13-8. Severe weather hazard precautions.

a. Each unit and activity will be prepared to deal effectively with hazards associated with inclement weather. Such hazards include slippery walkways due to rain, ice, or snow and hazards associated with high winds and tornados. Each unit and activity will prepare a plan of action to handle these hazards and will ensure all personnel are familiar with the plan.

b. Requirements.

(1) Leaders/supervisors/commanders will ensure that subordinates lockout and tag the main source of power before any maintenance, inspection, cleaning, or contact with machinery, equipment or systems that have potential to cause injury or death.

(2) The lockout will be by padlocks, blank flanges, padlock with chains, or similar device that physically prevents reactivation of a main power source.

(3) Individuals required to use locks and tags will be issued a personal lock and key. To eliminate the chance of unauthorized lock removal, duplicate keys will not be provided.

(4) The lockout device will be accompanied by a "Danger" tag that has the installer's full name, shop, telephone number, and date of installation.

(5) In any instance where physical lockout of the main power source is not possible, an attendant must be placed at the control device during work efforts.

CHAPTER 14
CONFINED SPACE ENTRY PROGRAM

14-1. General.

a. This document and 29CFR 1910.146 provide minimum safety requirements to be followed while entering, exiting, and working in confined spaces.

b. IAW 29 CFR 1910.146, confined space means a space that:

(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and

(2) Has limited or restricted means of entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and

(3) Is not designed for continuous employee occupancy.

c. Also refer to Chapter 11 on the Respiratory Protection Program and Chapter 13 on Lockout/Tagout Procedures when working in confined spaces.

14-2. Responsibilities.

a. SBSD will:

(1) Establish and administer a comprehensive confined space entry program and appoint a confined space program manager.

(2) The SBSD, in coordination with Preventive Medicine Service, will designate and classify areas on the installation considered confined spaces.

(3) Maintain a current list of confined spaces on the installation.

(4) Ensure that permit issuers are appointed for all directorate/activities who may have employees entering confined spaces.

(5) Provide guidance, upon request, to supervisors/permit issuers in the preparation of SOPs on confined space entry.

(6) Approve SOPs prepared for confined space entry before they are published.

(2) Ensure the number of permit issuers appointed are sufficient to meet operating needs.

(3) Ensure permit issuers are trained.

(4) Provide permit issuers with proper monitoring equipment.

(5) Ensure employees are supplied with required PCE to enter the confined space.

(6) Have a written confined space SOP that has been approved by the SBSD.

f. Supervisors will:

(1) Be familiar with the provisions of this program as they relate to personnel or operations under their control.

(2) Explain to all personnel under their immediate supervision the nature of the hazards with the operations and the precautions necessary to control such hazards.

(3) Ensure appropriate personnel are trained before entering confined space.

(4) Strictly enforce safety and health guidelines for confined space operations.

(5) Promptly report any unsafe acts, conditions, or procedures and, where warranted by such conditions, cease operation until corrective actions are taken.

g. Permit issuers will:

(1) Be appointed in writing with a copy provided to the SBSD.

(2) Be knowledgeable in confined space entry procedures and the proper selection, use, calibration, maintenance, and care of instruments required before performing such duties.

(3) Ensure records and certifications are made part of their personnel folders.

(4) Test confined space with properly calibrated testing equipment before entry.

c. If the work practice involved in the confined space has the potential to increase existing hazards or generate additional ones, it will be necessary to evaluate the space to determine if a classification change is warranted.

d. Rescue procedures will be specifically designed for each entry. If a confined space has an A or B classification, there will be a trained attendant assigned to that confined space. There will also be a fully charged, positive pressure, self-contained breathing apparatus (SCBA) on scene. Duties of the attendant are to maintain unobstructed life lines and communications to all workers within the confined space and to summon rescue personnel if necessary. Under no circumstances will the attendant enter the confined space. While awaiting rescue personnel, the attendant will make rescue attempts using the life lines from outside the confined space. Rescue teams entering Class A or B confined spaces will be equipped with all safety equipment required for entry, including an attendant and required life lines.

e. In the event of a Class C confined space rescue, a supplied-air respirator or a self-contained breathing apparatus will be used. A person summoned or one who recognizes the need for rescue will summon assistance and await their arrival outside the confined space. Respirators and life lines will be donned by rescue personnel with necessary equipment for removal of the victim(s).

14-4. Permit System (Class A, B, and C).

a. Entry into a permit required confined space will be by permit only. The permit is an authorization and approval, in writing, that specifies the location and type of work to be done. The permit also certifies that all existing hazards have been evaluated by the permit issuer and necessary protective measures have been taken to ensure the safety of each worker.

b. The permit issuer will be responsible for approving the permit when the following areas and actions have been reviewed and confirmed:

(1) Location and description of the work to be done (Class A, B, and C).

(2) Hazards that may be encountered (Class A, B, and C).

(3) Complete isolation checklist (Class A, B, and C).

(a) Blanking and/or disconnecting.

(b) Electrical lockout.

d. Class A or B confined space permits will be posted in a conspicuous place, close to the entrance of the work space, with a copy on file with the activity.

e. Training requirements of personnel entering or working in confined spaces will be suitable for the nature of the hazard and the work to be performed.

14-5. Medical Examinations (Class A and B).

a. Workers who enter a Class A or B confined space will have pre-placement and termination physical examinations. The supervisor will schedule employees for physical examination before allowing entry into confined spaces.

b. The employees will bring the following to the examination with them:

(1) Description of the type of confined space the employee may be required to enter,

(2) A listing of substances the employee may encounter,

(3) and the protective devices or equipment the employee will be required to use.

c. The physical examination will include:

(1) A demonstration of the worker's ability to use their personal protective equipment.

(2) A demonstration of the worker's ability to see and hear warnings, such as flashing lights, buzzers or sirens.

d. Following completion of the examinations, the physician will approve or disapprove the employee for confined space work.

e. Annual medical examinations are required for employees to work in Class A or B confined spaces and will be scheduled by the supervisor.

f. First Aid Provisions.

(1) For Class A and B entry there will always be someone readily available in the area trained in cardiopulmonary resuscitation (CPR) and basic first aid procedures.

14-7. Testing and Monitoring. (Class A, B, and C).

a. Entry into a confined space is prohibited until the attendant has completed initial testing of the atmosphere from the outside. Appropriate tests will be made to ensure the atmosphere is safe. Tests will include those for oxygen content, flammability, and toxic materials. Additional tests will be selected and performed to the satisfaction of the attendant person. Monitoring of Class A confined space will be done continuously. Class B and C will be monitored, as determined, by the attendant.

b. Entry into a confined space for any type of hot work will be prohibited when tests indicate the concentration of flammable gases in the atmosphere is greater than 10 percent of the lower explosive limit (LEL). It is necessary to determine the oxygen level (by appropriate testing) before measuring the range of flammability and to make necessary corrections in the flammability measurement. Monitoring of the atmosphere will be performed in accordance with the permit. Equipment for continuous monitoring of gases and vapors will be explosion proof and equipped with an audible alarm or danger signaling device that will alert employees when a hazardous condition develops. Instruments used for testing the atmosphere in a confined space will be selected for their functional ability to measure hazardous concentrations. Instruments will be calibrated in accordance with the manufacture's guidelines. Each calibration will be recorded, filed, and available for inspection for 1 year after the last calibration date.

c. In any confined space classified as a Class II or Class III hazardous location according to Article 500 of the National Electrical Code, a fire watch will be established as part of the entry procedure. In such areas surface dust and fibers will be removed and no hot work will be initiated until the airborne particulate level is below 10 percent of the LEL for the material. When combustible dusts or ignitable fibers/flyings (airborne fine particulate matter) are present, all equipment and ventilation systems used in the confined space will comply with Articles 502 and 503 of the national Electrical Code.

d. The percentage of oxygen for entry into a confined space will be no less than 19 percent nor greater than 23 percent. If tests indicate the oxygen level to be greater than 23 percent hot work is prohibited until ventilating techniques have reduced the oxygen level to approximately 21 percent. If the percentage of oxygen falls below 19, approved respiratory protection equipment will be used.

e. When the contaminants in the atmosphere cannot be kept within permissible exposure levels as set down 29 CFR 1910 Subpart Z, the employee will wear an approved respirator.

14-8. Labeling and Posting (Class A, B, and C).

b. Items normally used to protect against traumatic injury include: safety glasses, hardhats, safety footwear, and protective coveralls and respiratory protection as directed by Chapter 11.

(1) Eye and Face Protection. For persons who wear corrective spectacles, prescription ground safety glasses will be provided. Plano-goggles will be provided for others as necessary. If eye-irritating chemicals, vapors, or dusts are present, chemical resistant goggles will be required. If both the face and eyes are exposed to a hazard as during scraping scale or cutting rivets, a full coverage face shield with goggles will be used. During welding operations special goggles or shields will be used in accordance with 29 CFR 1910.252.

(2) Head Protection. Hard hats will meet the requirements cited in 29 CFR 1910.135.

(3) Foot Protection. All foot protection will meet or exceed the requirement cited in 29 CFR 1910.136 and will provide, in addition to protection from falling objects, protection from any other hazard identified by the permit issuer.

(4) Body Protection. Personnel entering a confined space will wear work clothing as specified by the permit issuer.

(5) Hearing Protection. When engineering technology is insufficient to control the noise level and the ambient exposure limit exceeds those allowed in TB MED 501, appropriate hearing protection will be worn. Emergency alarms will be distinguishable when hearing protection is worn. Sound level meters used to measure noise levels will be certified by NIOSH in accordance with DoD standards. Where the potential for explosion exists, sound level meters will be explosion-proof.

(6) Respiratory Protection. Only respiratory protective equipment which has been NIOSH approved will be used for confined space entry. A careful evaluation of all exposures or potential exposures must be made before proper respiratory protective devices can be determined. Such evaluations will include as a minimum:

(a) Types of contaminants present, likely to be present or generated (dust, mists, fumes, vapors, etc.)

(b) Concentration of contaminants present.

(c) Appropriate permissible exposure limits of the contaminants (threshold limit values, ceiling values, etc.).

(1) A safety belt with "D" rings for attaching a lifeline will be worn.

(2) The combination of a body harness and/or safety belt with lifeline will be used when:

(a) an employee is required to enter the confined space to complete the gas analysis;

(b) when an employee is working in an area where entry for purpose of rescue would be contraindicated (special limitations or fire hazard);

(c) when any failure of ventilation would allow the build-up of toxic or explosive gases within the time necessary to evacuate the area;

(d) when atmosphere is immediately dangerous to life and health.

(3) Safety belts may be used as the primary means of suspension for the life line only when rescue may be made by keeping the disabled body in a position that will allow easy passage through exit openings.

(4) If the exit opening is less than 18 inches (45 cm) in diameter, a wrist-type harness will be used.

(5) When it is determined by the permit issuer that none of the special hazards associated with confined spaces pose an immediate threat to life in Class C entry, life lines will be readily available but not required during entry and work procedures.

d. Other protective measures will include:

(1) safety nets used to protect employees working 10 feet (3 m) above ground or grade level when other protective devices are impractical;

(2) Life jackets worn if workers are exposed to falls into liquid over 4 feet (1.2 m) in depth;

(3) Insulated floor mats when hot work requires use of electrical energy.

(4) A barricade will be erected if inadvertent entry poses a problem. The barricade will have a mechanism to prevent closure of the escapeway, signs warning of the danger present, a physical barrier (fence) to keep the area clear, and an adequate platform (3 feet x 3 feet as a

(3) Local exhaust ventilation will be provided when general ventilation is not effective due to restrictions in the confined space or when high concentrations of contaminants occur in the breathing zone of the worker. Local high concentrations of contaminants occur in the breathing zone of the worker. Local high concentrations of contaminants may occur during activities such as welding, painting, and chemical cleaning. The worker will not be exposed to concentrations of contaminants in excess of those specified in 29 CFR 1910 Sub Part Z. Therefore, respiratory protection may be needed in addition to engineering controls. The use of respiratory protection will be determined by the permit issuer. However, when fumes may be generated that contain highly toxic or other airborne metal contaminants, provisions of 29 CFR 1910.252 will be observed. When freely moving exhaust hoods are used to provide control of fumes generated during welding, such hoods will maintain a velocity of 100 cubic feet per minute in the zone of the welding. The effective force of freely moving exhaust hoods is decreased by approximately 90 percent at a distance of one duct diameter from the plane of the exhaust opening. Therefore, to obtain maximum effectiveness, the welder will reposition the exhaust hood as he changes welding locations to keep the hood in close proximity to the fume source.

(4) Special precautions will be taken when outgassing or vaporization of toxic and/or flammable substances are likely. If the vapor-generating rate can be determined, the exhaust rate required can be calculated to dilute the atmosphere below the PEL and/or 10 percent of the LEL, whichever is lower. This will be the lowest acceptable ventilation rate. If the area of concern is relatively small, diffusion of the contaminants may be controlled by enclosure with a relatively low volume exhaust for control,or by exhaust hoods located as close as possible to the area of vaporization or outgassing. If the area to be ventilated is too extensive to be controlled by local exhaust, general ventilation procedures will be used to control the contaminant level. When the problem of outgassing is due to the application of protective coatings or paint, ventilation will be continued until the build-up of a flammable and/or toxic atmosphere is no longer possible.

b. Isolation/Lockout/Tagging (Class A and B).

(1) The isolation procedures will be specific for each type of confined space. Safety equipment required during this procedure will be designated by the permit issuer and be dependent upon the potential hazards involved. A Class A or B confined space will be completely isolated from all other systems. Where complete isolation is not possible, such as sewers or utility tunnels, specific written safety procedures that are approved and enforced by the permit issuer will be used. Blanks used to seal off lines will be:

(a) capable of withstanding the maximum working pressure or load of the line (with a minimum safety factor of 4).

(a) it will be allowed to cool prior to entry;

(b) ventilation will be maintained during neutralization procedures to prevent build-up of toxic materials;

(c) steaming will not be used as a cleaning method when the product stored was a liquid with an autoignition temperature 120 percent or less of the steam temperature; and

(d) the pipe or nozzle of the team hose will be bonded to the tank to decrease the generation of static electricity that could accumulate in tanks during steaming procedures. These and other hazards and controls will be evaluated by the SBSD and Fire Department.

d. Equipment and Tools (Class A, B, and C). Equipment and tools to be used in a confined space will be carefully inspected and will meet the following requirements.

(1) Hand tools will be kept clean and in good repair.

(2) Portable electric tools, equipment, and lighting will be approved in accordance with 29 CFR Part 1910 Sub Part Z and be equipped with a ground fault circuit interrupter (GFCI) that meets the requirements of 29 CFR 1910.309. All grounds and GFCIs will be checked before electrical equipment is used.

(3) All electrical cords, tools, and equipment will be of heavy duty type with heavy duty insulation and inspected for defects before use.

(4) Air-driven power tools will be used when flammable liquids or atmospheres are present.

(5) Lighting used in class A and B confined spaces will be explosion-proof and where necessary, be equipped with guards. Only equipment listed by Underwriters Laboratories for use in Division 1, atmospheres of the appropriate class and group, or approved by U.S. Bureau of Mines or Mining Enforcement and Safety Administration or Mine Safety and Health Administration, or the U.S. Coast Guard will be used. Lighting will not be hung by electric cords unless specifically designed for that purpose. The illumination of the work area will be sufficient to provide for safe work conditions as referenced in the ANSI standard A11-1-1965 or the revision, 1979. Under no circumstances will matches or open flames be used in a confined space for illumination.

CHAPTER 15
BRANCH SAFETY

15-1. General.

Branch safety is the Commander USASC&FG's program to identify issues and correct problems that affect the Signal Corps soldier's safety. It includes integrating safety into equipment, training and doctrine.

15-2. Responsibilities.

a. The SBSD will:

(1) Develop safety related critical test issues.

(2) Analyze accident data and identify accident trends to develop safety lessons learned.

(3) Develop safety releases for pre-test training for local tests, experiments, appraisals and demonstrations.

(5) Develop safety release recommendations for USASC&FG sponsored user tests.

b. The Director of Each Training Department will:

(1) Risk manage all lesson plans and assign a residual risk of Extremely High, High, Medium, or Low (See Chapter 22). The risk level will appear in the Administrative Data Sheet.

(2) Forward a list of low risk lesson plans to the SBSD.

(3) Staff medium risk lesson plans with the SBSD for approval.

(4) Staff high risk lesson plans through the SBSD to Commander USASC&FG for approval.

(5) Staff extremely high risk lesson plans through the SBSD and Commander USASC&FG to the Commander TRADOC for approval.

c. The Office of the Deputy Commander/Assistant Commandant will:

Chapter 16
USASC&FG UNIT SAFETY PROGRAM
STANDING OPERATING PROCEDURE (SOP)

16-1. General.

Each USASC&FG unit will have a written SOP for safety. Commanders at every level will establish and maintain a continuing, comprehensive and aggressive accident prevention program throughout their units. Unit SOPs need not be lengthy, but must reflect the commander's development of an aggressive accident prevention program. To assist commanders in their SOP development, a sample follows.

16-2. Sample Safety SOP.

a. PURPOSE. To ensure a continuing, aggressive preventive safety program throughout the unit.

b. REFERENCES. AR 40-10 AR 385-10, AR 385-40, AR 385-55, DA PAM 385-2.

c. SCOPE. This SOP outlines the organization of the Unit safety program and the responsibilities of personnel implementing the safety program.

d. OBJECTIVE. To improve the readiness and effectiveness of the unit by minimizing personnel injury and equipment losses.

e. RESPONSIBILITIES. The commanding officer is responsible for assuring the accident prevention program meets the requirements of current regulations. The following personnel are responsible as indicated:

(1) Collateral Duty Safety Officer/NCO will:

(a) Attend the Special Safety Representative course taught by the SBSD and be familiar with the contents of this Single Source Safety Program Document.

(b) Ensure the Material Safety Data Sheets are on hand for all hazardous chemicals used in the workplace.

(c) Ensure all personnel are briefed on the hazardous materials their job requires them to use IAW FG 385-1.

(e) Assure necessary protective equipment and clothing is available as required for daily operations.

(f) Report to the SBSD for a safety briefing within 30 calendar days of assignment.

(g) Control the use of hazardous chemicals to ensure safe use and disposal.

(h) Ensure all unit members are familiar with the hazards of their workplace, such as the hazardous materials involved.

(i) Review accident reports.

(3) The unit motor officer/NCO will:

(a) Ensure unit drivers are trained before licensing for operation of military vehicles.

(b) Conduct safety briefings to unit drivers.

(c) Establish safe operating procedures for motor pool operations and provide enforcement measures.

(d) The motor officer will ensure that personnel operating military vehicles have completed the Army Driver Improvement (ADIP) course.

(e) In the absence of a motor officer/NCO the unit commander will appoint someone to perform the above duties.

f. ACCIDENT REPORTING. All accidents will be reported to the supervisor. Pending the arrival of the Collateral Duty Safety Officer/NCO, the supervisor of the injured person will begin the investigation to determine why the accident happened. The supervisor will complete the DA Form 285, when required. The Safety Officer will check for completion and accuracy before forwarding to the Commander.

g. UNIT SAFETY COMMITTEE. The unit safety committee will consist of all members of the unit staff, to include the safety officer and will be operated in conjunction with regularly scheduled staff meetings. Problems concerning safety will be discussed and resolved during these meetings. The safety Officer will provide documentation of actions as needed.

CHAPTER 17
RADIATION PROTECTION

17-1. Purpose.

To keep exposure to ionizing and non-ionizing radiation within safety standards, and As Low As Reasonably Achievable.

17-2. Scope.

This chapter applies to all USASC&FG units and all Fort Gordon tenants. It applies to Reserve, National Guard, military, and civilians that train on Fort Gordon. It applies to contractor operations on Fort Gordon. It does not apply to radiopharmaceuticals or medical equipment used by DDEAMC.

17-3. Responsibilities.

a. The Radiation Protection Officer (RPO) will:

(1). Form and chair the Radiation Protection Committee. All issues and a quarterly exposure listing of all personnel badged by the FGRPO will be brought to the Fort Gordon Safety and Occupational Health Council on a quarterly basis.

(2). Maintain an inventory of ionizing radiation sources on Fort Gordon.

(3). Maintain an inventory of RF and Microwave transmitters that have an output power of seven watts or more.

(4). Maintain an inventory of Class III, IV and military exempt laser devices on Fort Gordon.

(5) Ensure compliance with mandated statutes, standards, policies, and procedures with regards to radiation protection.

(6) Ensure all Local Radiation Protections Officers (LRPOs) receive initial and annual refresher training of sufficient depth to ensure compliance with existing standards and the proviion of a safe work environment.

b. USASC&FG Commanders and Directors will:

include name of item, output and frequencies normally used on the center and normal location. Note: Classified systems are not exempt from this inventory.

(3). Provide the RPO a list of Class III, IV and military exempt laser devices that they might bring onto Fort Gordon during training. The list will include name of item, class, wavelength, use, and normal location.

(4). Update the above lists twice each year in March and September. Negative replies are requried.

e. The Directorate of Public Works/Corps of Engineers will:

(1). Provide the RPO a list of the ionizing radiation sources contractors will bring onto Fort Gordon The list will include the owner, name of the item, isotope, activity, use, and normal location.

(2). Provide the RPO a list of RF and Microwave transmitters with an output power of seven watts or more contractors will bring onto Fort Gordon. The list will include name of item, output and frequencies normally used on the center and normal location. Note: Classified systems are not exempt from this inventory.

(3). Provide the RPO a list of Class III, IV and military exempt laser devices contractors will bring onto Fort Gordon The list will include the owner, name of item, class, wavelength, use, and normal location.

(4). Update the above lists twice each year in March and September. Negative replies are requried.

f. Civilian organizations and other military units will:

(1). Provide the RPO a list of the ionizing radiation sources they plan to bring onto Fort Gordon The list will include the owner, name of the item, isotope, activity, use, normal location, and dates it will be on Fort Gordon.

(2). Provide the RPO a list of RF and Microwave transmitters with an output power of seven watts or more they will bring onto Fort Gordon. The list will include name of item, output and frequencies normally used on the center and normal location. Note: Classified systems are not exempt from this inventory.

CHAPTER 18
FIELD TRAINING EXERCISES AND TACTICAL OPERATIONS

18-1. Responsibilities.

a. USASC&FG commanders and units using Fort Gordon facilities will:

(1) Plan field training exercise and tactical operations, ensuring that risk assessment procedures outlined in Chapter 22 of this document are followed.

(2) Ensure that required safety precautions are implemented during all phases of the exercise.

(3) Provide operation plans to the designated safety officer for review during the planning stages before deployment.

b. Unit Safety Officers will:

(1) Assure that precautions in this document are included in operation plans submitted for review by subordinate units.

(2) Present a safety briefing to all participating personnel before deployment.

(3) Prepare reports of accident experience, to include DA Form 285 Accident Reports and after-action reports.

(4) Review accidents that occurred during exercises and develop countermeasures to prevent future occurrences.

(5) Conduct safety surveys and present daily briefings to the command group regarding deficiencies noted and recommended corrective actions.

18-2. Pre-exercise actions/risk management.

(a) Drivers will receive appropriate training in proper off-road driving and convoy procedures.

(b) A reconnaissance will be made of bivouac locations and routes of marches to ensure road hazards are identified and controlled, and that the bivouac area is free of duds, old barbed wire and other hazards.

i. Vehicles and trailers will be parked to prevent their rolling into the bivouac area and the wheels chocked.

j. Before starting a vehicle, the driver must walk around the vehicle to ensure no one is in danger from movement of the vehicle.

k. Ground guides will be used for all vehicle movement in bivouac areas.

l. Inflating tires with split rims will be IAW chapter 13 of this document.

m. Communication wire will not be strung over power lines. Commo wire will be run on the ground to prevent injury to soldiers riding in open vehicles and low flying helicopters. All wire will be removed from the range areas upon completion of the exercise.

n. Vertical antennas will be located so as to maintain a distance of at least twice the antenna height between power lines and antenna to preclude contact during assembly and disassembly. All personnel must wear safety goggles, gloves and a helmet before erecting an antenna mast.

o. Weapons, ammunition, pyrotechnic simulators, and explosives will be strictly controlled. Soldiers will be cautioned never to remove or ignite photo flash powder contained in simulators due to the potential for severe powder burns.

18-4. Army motor vehicle operations.

a. Movement of military vehicles under blackout conditions is prohibited on roads open to the public unless prior arrangements have been made to close the roads to public traffic.

b. Drivers will be licensed for the vehicle they are operating.

c. Only highly qualified drivers with good driving records will be used to transport troops.

d. Drivers of vehicles with radios will be cautioned concerning dangers of operating near power lines. Antennas will be tied down when the vehicle is in motion. Antenna caps will be firmly in place. Tape will be used if necessary to secure the cap in place.

e. When crossing hazardous terrain or obstacles where danger of overturning is possible, wheeled vehicle passengers will dismount.

r. Personnel will not sleep in, under, or near vehicles.

s. The maximum number of passengers authorized, load capacity, and the maximum speed limit will be stenciled on the dashboard of the vehicle.

18-5. Tracked vehicle safety:

a. Each tracked vehicle will have a Track Commander (TC) who must ride in the commander's hatch with only head and shoulders exposed. The TC must be a licensed driver.

b. The movement of a tracked vehicle without a TC and working intercom is prohibited.

c. Tracked vehicles will not be started unless the portable and fixed fire extinguishers are present and in operating condition. During maintenance operations, portable fire extinguishers are acceptable.

d. Before lowering or raising the ramp, the rear area will be checked for clearance and the horn sounded twice. On M113 series vehicles, the deflective ramp will be marked "Free Fall Ramps" on the ramp and sides of the vehicle. A tow cable will be used to secure free fall ramps.

e. Open hatch covers will be tested by shaking them to ensure the latches are locked in position. Open hatch covers will be securely fastened with the positive pin to preclude accidental closing during movement of the track.

f. Wearing of rings or other jewelry by personnel riding in or operating tracked vehicles is prohibited.

g. Protective headgear, such as the TC helmet (CVC), or kevlar helmet will be worn with the chin strap buckled by personnel in tracked vehicles.

h. All personnel exposed to eye hazards will wear eye protection. Eye protection is mandatory for TC and driver while the vehicle is in operation.

i. Two ground guides per vehicle will walk 2 meters to the left of the vehicle when space permits, and 10 meters to the front and rear of the vehicle. Ground guides will be used at all times while maneuvering in or near bivouac areas.

v. When driving on paved roads, extreme caution will be used by tracked vehicle drivers to prevent damage to the road surface. Highly accelerated starts and sharp turns will be avoided. Drivers will keep both tracks fully on the pavement.

w. When tracked vehicles in convoy cross intersections, road guards with proper equipment (High visibility/reflective vests/sashes and lights when appropriate) will be stationed far enough from the intersection to permit control of traffic.

x. Single tracked vehicles crossing intersections will come to a full stop and proceed across only when the way is clear.

y. Radio-equipped tracks operating near power lines will have antenna tied down to ensure three meters of clearance below power lines.

z. Tracked vehicles broken down on roadways or tank trails during hours of darkness must be adequately marked to protect traffic. Commanders will ensure that chemical lights or Highway Warning Kits are available in sufficient quantities to comply with this requirement.

aa. Engine cooling compartment access panels on M113 series tracks will be installed at all times during operation. It is the TCs responsibility to ensure that the panels seal properly to prevent carbon monoxide from entering the crew compartment.

bb. Mortar ammunition will not be prepared for firing inside a mortar carrier. The ramp should be down when firing the mortar for training. Residue from firing charges will not be permitted to accumulate inside mortar carrier.

18-6. Refueling Procedures.

a. Turn engine off before fuel transfer operations.

b. Prohibit smoking, open flames, or vehicle operation within 16 meters while refueling or draining fuel tanks.

c. Refuel/defuel outdoors only.

d. Vehicles must be grounded IAW FM 10-69 before fuel transfer operations. When fueling a vehicle from a fuel tank truck, be sure the bonding cable between the two vehicles is in place. Ensure the bonding cable is in good condition.

b. Each battalion or equivalent will prepare a written plan for dealing with such hazards and will ensure all personnel are familiar with the plan.

(2) Be the commander's representative on all aviation safety matters. This includes providing guidance and recommendations to all aviation activities and units on the installation.

(3) Organize and ensure completion of semi-annual Aircraft Accident Prevention Surveys. The ASO will ensure that all programs with safety impact are evaluated.

(4) Ensure airfield/unit safety bulletin boards and aviation safety functional files are maintained.

(5) Act as recorder for aviation safety councils.

(6) Manage the aviation safety awards program.

(7) Establish an ongoing analysis program to identify current and projected safety issues and recommended solutions.

(8) Report all recordable mishaps in a timely fashion and act as POC for chain of command questions.

(9) Provide guidance to the airfield commander on safety matters and safety training.

19-4. General.

a. All aviation unit commanders will establish a commander's accident prevention program tailored to the unit and it's mission. A unit safety SOP will be generated as part of the accident prevention program.

b. Aviation Safety Meetings.

(1) An Aviation Safety meeting for safety education and awareness will be conducted monthly. The monthly meeting minutes will include a roster of personnel absent as well as subjects covered. A make up system will be devised and implemented. Minutes of the meetings and records of attendance will be kept for two years.

(2) Required training, such as weather briefings, aeromedical training, etc. must be conducted by subject matter experts (Air Force weather personnel, Flight Surgeons, etc.). All flight crewmembers should participate in required classes, such as aeromedical training, together.

(f) Extent of Damage.

(g) Synopsis of Accident.

(h) Other Remarks. (Crew experience, weather, NVGs used, previous accidents of crew, collateral accident investigation requested, etc.). This is in addition to the requirements outlined in AR 385-40 for accident notification.

(2) Secure the accident site. Procedures will be developed for both short and long term security of an aviation accident site. These procedures should be coordinated with the Military Police and local law enforcement activities.

(3) Blood and urine samples will be taken immediately by the appropriate medical facility for all Class A-C aviation accidents and processed using formal chain of custody procedures.

(4) Aircraft damaged or suspected of damage will not be flown until cleared for flight by qualified maintenance personnel. When appropriate, maintenance records will be secured by the unit for investigation board.

f. General Aviation Safety.

(1) The appropriate check list will be used for preflighting, postflighting, before take off and before landing checks. The call and response method to verify actions will reduce human error accidents due to forgetfulness.

(2) If issued, the SPH-4 helmet will be worn by all aviation personnel participating in rotary wing flights (not just crewmembers) unless waived by the installation commander or HQ TRADOC.

d. Commanders, directors, and tenants will:

(1) Ensure that all personnel in their organization are trained on the Hazard Communication Program and their rights and responsibilities under that program.

(2) Ensure that first line supervisors provide safety orientation and training to employees in their assigned work areas. All training will be documented.

(3) Ensure that engineering controls, protective clothing and equipment or administrative controls provided and used for employee health and safety and protection of the environment have SBSD or the PMS approval prior to use.

(4) Establish procedures to locally maintain, update quarterly as a minimum, a listing of hazardous chemicals and materials used by their organization. A copy of this listing will be provided to the SBSD, ATZB-PSB (Spec Ops) each March and September. A copy will be available at the unit for review, upon request, by safety, health, and emergency personnel.

(5) Ensure that each work area maintains an MSDS for each hazardous material used or stored in that area.

e. First-line supervisors will:

(1) Maintain a listing of hazardous chemicals and materials used or stored to their work area. Quarterly forward copies of hazardous chemical lists to the SBSD, ATTN: ATZS-PSB

(2) Obtain an MSDS for each hazardous chemical or material.

(3) Make MSDSs and hazardous chemical list available to employees upon request. MSDS's must be readily available to employees on all shifts.

(4) Provide information and training to new employees, regarding the Hazard Communication Program to include any standing operating procedures (SOPs), personal protective equipment, etc. Training requirements and procedures are outlined in this document.

(5) Provide the required personal protective equipment and enforce compliance with the MSDS requirements.

(6) Prepare SOPs for nonroutine tasks (cleaning dip tanks, vapor degreasers). Forward copies of SOPs to the SBSD.

20-2. Hazardous Chemical Inventory.

a. A hazardous chemical inventory must contain the same name for the chemical material as shown on the label and MSDS.

b. The SBSD maintains a list of hazardous chemicals present on Fort Gordon and their location. This list will be provided to Preventive Medicine Activity, Fire Department, Provost Marshal and Environmental Division, Directorate of Public Works.

c. First-line supervisors must maintain an inventory of hazardous chemicals used in individual work areas. This inventory will be kept with the MSDS for that work area.

d. The hazardous chemical inventory will be updated quarterly and will be amended each time a new hazardous chemical is introduced into a work area. As a minimum the list will contain the following information:

(1) Organization.

(2) Building and room number.

(3) Name and extension of preparer.

(4) Name of Chemical.

(5) NSN.

(6) Maximum quantity on hand.

(7) Type of container.

e. Provide a copy of the original list and updates to the SBSD, ATTN: ATZS-PSB.

20-3. Policy for Hazardous Material.

a. Prior to exposure, personnel who work with or may be occupationally exposed to hazardous chemicals will be informed, through training, of the hazards, protective equipment, and actions necessary to avoid or minimize their exposure.

b. The quantity of hazardous chemicals and materials stocked by any user will not exceed the quantity necessary to satisfy operational requirements. Where less hazardous or non-

many nonstock items is also available and is cross referenced by part number, trade name, specification, and Federal Supply Code for the manufacturer. Instructions for using the HMIS microfiche are provided in DOD 6050.5-M, DOD HMIS Procedures Manual.

c. The four-digit UN/NA number may be placed on containers. DOT labels and markings will be in strict compliance with Title 49 CFR and will not be applied to unregulated materials.

20-6. Alternative Labeling.

a. Where the labeling of every container is either impractical or inappropriate, alternative means of labeling may be used. These methods must provide the name information contained on a label. Alternate forms of labeling include:

(1) Placarding.

(2) Batch processing papers.

(3) Shipping papers.

(4) Other forms approved by the SBSD.

b. Where an individual's work requires that a small amount of a hazardous chemical be used, labeling is not required when the following conditions are met:

(1) The chemical is used only by the individual who obtained it from the original container.

(2) The amount of chemical in the unlabeled container does not exceed what is required for the work shift.

(3) The individual using the chemical can maintain control and security of the container while it contains the unlabeled chemical.

c. The following chemicals are exempt form the labeling requirements IAW 29 CFR 1910.1200:

(1) Pesticides subject to labeling under the Federal Insecticide, Fungicide and Rodenticide Act and the EPA.

(2) Wood and wood products.

Chapter 21
BLOODBORNE PATHOGENS EXPOSURE CONTROL PLAN

21-1. Purpose: To comply with the OSHA Bloodborne Pathogens standard, 29 CFR 1910.1030. the following exposure control plan has been developed:

21-2. Responsibilities.

a. The Occupational Health Section, DDEAMC will:

(1) Publish and update as needed a bloodborne pathogens exposure control plan for non-medical personnel.

(2) Provide training to non-DDEAMC personnel.

b. DDEAMC will:

(1) Publish and update it's own bloodborne pathogens exposure control plan for personnel routinely exposed to bloodborne pathogens.

(2) Provide appropriate medical surveillance and immunizations to personnel covered under this plan.

21-3. Program Requirements:

a. Exposure Determination:

(1) OSHA requires employers to perform an exposure determination concerning which employees may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of personal protective equipment (i.e. employees are considered to be exposed even if they wear personal protective equipment.) This exposure determination is required to list all job classifications in which all employees may be expected to incur such occupational exposure, regardless of frequency. At this facility the following job classifications are in this category:

(a) Military Police
(b) Police Officers
(c) Firefighters
(d) Lifeguards
(e) Child Care Workers

(d) If handwashing facilities are not readily accessible, use either an antiseptic cleanser in conjunction with a clean cloth/paper towels or antiseptic towelettes. If these alternatives are used then the hands are to be washed with soap and running water as soon as possible. Alternate handwashing equipment should be located in all patrol vehicles and fightfighting vehicles. Supervisors will ensure that adequate supplies are maintained.

(e) After removal of personal protective gloves, employees will wash hands and any other potentially contaminated skin area immediately or as soon as feasible with soap and water.

(f) If employees incur exposure to their skin or mucous membranes than those areas will be washed or flushed with water as appropriate as soon as feasible following contact.

(2) Needles. Contaminated needles and other contaminated sharps will not be bent, recapped, removed, sheared or purposely broken.

(3) Work Area Restrictions. In areas where there is a reasonable likelihood of exposure to blood or other potentially infectious materials, employees are not to eat, drink, apply cosmetics or lip balm, smoke, or handle contact lenses. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, or on counter tops or bench tops where blood or other potentially infectious materials are present.

(4) Specimens. Specimens of blood or other potentially infectious materials will be placed in a container which prevents leakage during the collection, handling, processing, storage, and transport of the specimens. The container used for this purpose will be labeled or color coded in accordance with the requirements of the OSHA standard. If outside contamination of the primary container occurs, the primary container will be placed within a secondary container which prevents leakage during the handling, processing, storage, transport, or shipping of the specimen.

(5) Contaminated Equipment. Equipment which is or maybe contaminated with blood or other potentially infectious materials will be examined prior to servicing or shipping and will be decontaminated as necessary unless the decontamination of the equipment is not feasible. Equipment will be appropriately packaged and forwarded to the agency or service that can decontaminate the equipment when local decontamination is not possible. Appropriate protective measures should be taken by personnel decontaminating potentially infectious equipment.

(6) Personal Protective Equipment.

(h) Any broken glass which may be contaminated will not be picked up directly with the hands. The following procedures will be used: gloves will be worn and glass will be swept into a dustpan or waste container for disposal.

(i) Regulated Waste Disposal. All contaminated sharps will be discarded as soon as feasible in sharps containers which are located at the Eisnehower Army Medical Center emergency room. Regulated waste other than sharps will be placed in appropriate containers.

(j) Laundry Procedures. Laundry contaminated with blood or other potentially infectious materials will be handled as little as possible. Such laundry will be placed in appropriately marked bags at the location where it was used. Such laundry will not be sorted or rinsed in the area of use. All employees who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or other potentially infectious materials. Laundry at this facility will be cleaned at the main post laundry. The laundry will be notified that the laundry is potentially infectious.

(7) Hepatitis B Vaccine

(a) All employees who have been identified as having exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the employee. The vaccine will be offered within 10 working days of their initial assignment to work involving the potential for occupational exposure to blood or other potentially infectious materials unless the employee has previously had the vaccine or who wishes to submit to antibody testing which shows the employee to have sufficient immunity.

(b) Employees who decline the Hepatitis B vaccine will sign a waiver which uses the wording in Figure 21-1. Military personnel may not decline the vaccine except in accordance with applicable Army regulations.

(c) Employees who initially decline the vaccine but who later wish to have it may then have the vaccine provided at no cost.

(d) Supervisors will ensure that vaccine is offered to all employees. Vaccinations are available through the Occupational Health Clinic. Supervisors will make the appointments and ensure appointments are kept.

(8) Post-Exposure Evaluation and Follow-up. When the employee incurs an exposure incident, it should be reported to the Occupational Health Clinic. All employees who

(a) Training for all employees will be conducted at initial assignment to tasks where occupational exposure may occur. Training will be conducted by appointment with the Safety Division.

(b) Training for employees will include the following:

1) the OSHA standard for Bloodborne Pathogens
2) Epidemiology and symptomatology of bloodborne diseases
3) Modes of transmission of bloodborne pathogens
4) This Exposure Control Plan, i.e. points of the plan, lines of responsibility, how the plan will be implemented)
5) Procedures which might cause exposure to blood or other potentially infectious materials
6) Control methods which will be used at the facility to control exposure to blood or other potentially infectious materials, including handwashing
7) Personal protective equipment available and who should be contacted
8) Post Exposure evaluation and follow-up
9) Signs and labels used at the facility
10) Hepatitis B vaccine program at the facility

(11) Recordkeeping. All medical records required by the OSHA standard will be maintained by the medical treatment facility. All training records will be maintained by the supervisor and the Safety Division.

(12) Dates.

(a) All provisions required by the standard will be implemented by: 31 MAY 1997.

(b) Training will be conducted using videotapes, written material, and classroom instruction. The Preventive Medicine Activity is responsible for this training.

(c) All employees will receive annual refresher training. Supervisors will maintain records of employee training and schedule refresher training with the Preventive Medicine Activity.

Four principles of Risk Management

1. Accept no unnecessary risk
2. Make risk decisions at the right level
3. Accept risks when the benefits outweigh the costs
4. Manage risk in the concept and planning stages of operations

Basic Risk Management Process

1. Identify: List the hazards
2. Assess: Determine the risk of each hazard
3. Decide: Reduce risk to appropriate level for mission
4. Control: Develop and implement controls
5. Supervise: Ensure controls are followed, get feedback

Hazard Severity Definitions

I Catastrophic — Death or permanent disability, system loss, major property damage, not mission capable

II Critical — Permanent partial disability, temporary total disability more than 3 months, major system damage, significant property damage, significantly degrades mission capabilities

III Marginal — Minor injury, lost workday accident, compensable injury/illness, minor system damage, minor property damage, degrades mission capabilities

IV Negligible — First aid or minor supportive medical treatment, minor system impairment, small or no impact on mission capabilities

Hazard Probability Definitions

A Frequent

Individual soldier	Occurs often in career
All soldiers exposed	Continually experienced

B Probable

Individual soldier	Occurs several times in career
All soldiers exposed	Occurs frequently

C Occasional

U.S. Army Signal Center and Fort Gordon
Risk Management

POI: SBSD-12 Title: Introduction to Risk Management

HS - Hazard Severity

I Catastrophic
II Critical
III Marginal
IV Negligible

HP - Hazard Probability

A Frequent
B Probable
C Occasional
D Remote
E Improbable

HS

HS \ HP	A	B	C	D	E
I	E	E	H	H	M
II	E	H	H	M	L
III	H	M	M	L	L
IV	M	L	L	L	L

Risk Levels: E - Extremly High H - High M - Medium L - Low

Hazards Identified	HS	HP	Risk
1. Students backing car into telephone pole	II	D	M
2.			
3.			
4.			

Control Measures	Residual Risk
1. Hazard marking tape on pole, warn students	L
2.	
3.	
4.	

Approval:

Approval Level: Course Manager

U.S. Army Signal Center and Fort Gordon
Risk Management

Unit: SBSD Location: East Range Date: 7 Dec 93

Mission or task: Removal of Radium Faced Gauges

HS - Hazard Severity

I Catastrophic
II Critical
III Marginal
IV Negligible

HP - Hazard Probability

A Frequent
B Probable
C Occasional
D Remote
E Improbable

Risk Matrix

	A	B	C	D	E
I	E	E	H	H	M
II	E	H	H	M	L
III	H	M	M	L	L
IV	M	L	L	L	L

Risk Levels: E - Extremly High H - High M - Medium L - Low

Hazards Identified	HS	HP	Risk
1. Radium ingestion	II	D	M
2. Slip and fall in tank	II	C	M
3. Oxygen deficient/Hydrogen Sulfide in tank	I	D	H
4. Animal Bites	III	D	C

Control Measures	Residual Risk
1. PPE: full face respirator, Tyvek suit	L
2. Fire Dept HAZMAT team on stand-by	L
3. Confined space entry procedures/gas monitor	L
4. See #2 above	L

Approval:

APPENDIX A
REFERENCES

AR 11-34	Army Respiratory Protection Program
AR 15-6	Procedure for Investigating Officers and Board of Officers
AR 25-400-2	Modern Army Recordkeeping System
AR 40-5	Preventive Medicine
AR 45-29	Military Convoy Operation in CONUS
AR 190-5	Motor Vehicle Traffic Supervision
AR 190-11	Physical Security of Arms, Ammunition and Explosives
AR 190-40	Serious Incident Report
AR 195-2	Criminal Investigation Activities
AR 385-10	Army Safety Program
AR 385-11	Ionizing Radiation Protection, Transportation, Disposal, and Radiation Safety
AR 385-14	Accident/Incident Report-Shipment of ConventionalExplosives & Dangerous Articles By Commercial Carriers
AR 385-15	Water Safety
AR 385-16	System Safety
AR 385-26	Use of Explosive and Pyrotechnics in Public Demonstrations, Exhibitions, and Celebrations
AR 385-30	Safety Color Code Marking and Signs
AR 385-32	Protective Clothing and Equipment
AR 385-40	Accident Reporting and Records
AR 385-55	Prevention of Motor Vehicle Accidents
AR 385-60	Coordination with Armed Services Explosive Board
AR 385-61	Safety Programs for Chemical Agents and Associated Weapons Systems
AR 385-62	Firing Guided Missiles and Heavy Rockets for Training, Target Practice and Combat
AR 385-63	Policies and Procedures for Firing Ammunition for Training, Target Practice and Combat
AR 385-64	Ammunition and Explosive Safety Standards
AR 385-65	Identification of Inert Ammunition and Ammunition Components
AR 385-95	Army Aircraft Accident Prevention
AR 600-55	Motor Vehicle Driver Selection, Testing, and Licensing
DA PAM 385-1	Unit Safety Management
DA PAM 385-3	Protective Clothing and Equipment
DA PAM 385-5	Fundamentals of Safety in Army Sports and

FG Reg 210-13	Registration of Privately Owned Weapons
Guide for Supervisors, Federal Employee Compensation Act (FECA)	
29 CFR 1910	General Industry Standards
10 CFR 19,20,21	Nuclear Regulatory Commission Standards
NFPA 70	National Electric Code
NFPA 101	Life Safety Code

ATTENDANT: A person trained in emergency rescue procedures and assigned to remain on the outside of the confirmed space and to be in communication with those working inside.

CEILING LIMIT: The maximum airborne concentration of a toxic agent to which an employee may be exposed for a specified period of time (ceiling equals 15 minutes).

CHEMICAL CONTAINER: Bags, barrels, bottles, boxes, cans, cylinders, drums, reaction vessels, storage tanks, and other vessels is used to hold chemicals.

CHEMICAL HAZARD: Any chemical material that can cause health problems, fire, explosion, or other dangerous situations.

COMBUSTIBLE DUST: A dust capable of undergoing combustion or burning when subjected to a source of ignition.

COMBUSTIBLE LIQUID: Liquid having a flash point at or above 100 degrees but below 200 degrees Fahrenheit.

COMPRESSED GAS: Gas stored inside a container at a present much higher than normal air pressure; contains a lot of stored energy; a physical hazard due to the potential for sudden release of the stored energy when the gas expands.

CONFINED SPACE: Refers to a space which by design has limited openings for entry and exit; unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include but are not limited to storage tanks, compartments of ships, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.

FLAMMABLE LIQUID: Liquid having a flash point below 100 degrees Fahrenheit.

GAS: The fluid form of a substance which can expand indefinitely and completely to fill its container. Form that is neither liquid or solid.

GAS DETECTION MONITOR: A person designated, in writing, to test the atmosphere prior to allowing employees to enter confined spaces. This person will be capable (by education and/or specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall also be capable of specifying necessary control and/or protective action to ensure worker safety.

HAZARDOUS CHEMICAL: A chemical which presents a health or physical hazard. Health hazards include carcinogens, irritants, sensitizers, corrosive, and reproductive toxins. Physical hazards include combustible and flammable liquids, compressed gases, explosives, oxidizers, organic peroxide, pyrophoric substances, and unstable or water reactive substances. A one month or less supply of routine household cleaning products or office supplies are exempt from labelling or inventory requirements of this document.

HAZARDOUS CHEMICAL INVENTORY: List of all hazardous chemicals known to be present in a given workplace; identify/name of chemicals is used on this list must match the identify/name used on the warning labels and MSDSs.

HAZARD COMMUNICATION PROGRAM: Written document that describes how an employer or facility compiles with all requirements of the Federal Hazard Communication Standard (29 CFR 1910.1200).

HAZARD COMMUNICATION STANDARD: Federal law developed by OSHA to reduce illness and injury caused by chemical hazards in the workplace, requires evaluation of chemical hazards and communication of hazard information to both employers and employees.

HEALTH HAZARD: Any chemical material that can cause illness or injury when a person is exposed by ingestion, skin or eye contact, skin absorption, or inhalation.

HOT WORK: Any work involving burning, welding, riveting, or similar fire producing operations, as well as work which produces a source of ignition, such as drilling, abrasive blasting, and space heating.

HOUSEKEEPING: An administrative control that involves containing and removing chemical hazards, e.g., vacuuming, proper storage and handling, prompt removal, and correct disposal of chemical wastes.

OCCUPATIONAL ILLNESS: An abnormal physical condition or disorder that did not result from a single traumatic cause.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): Federal agency within the Department of Labor that develops and enforces standards for workplace safety and health.

ON-DUTY INJURY: Army personnel are on duty when they are:

a. Physically present at any location where they are to perform their officially assigned work. On-duty also includes those normal activities that occur during workdays, e.g. lunch or coffee breaks.

b. Being transported by Army or commercial conveyance to perform officially assigned duties.

c. In a travel status because of temporary duty or a permanent change of station, but only during periods for which reimbursable expenses are authorized.

d. Participating in mandatory sports or physical training activities.

OXYGEN DEFICIENCY: Any concentration of oxygen with a partial pressure of less than 19 percent.

OXYGEN ENRICHED ATMOSPHERE: Any oxygen concentration greater than 25 percent at normal atmospheric pressure.

PERMISSIBLE EXPOSURE LIMIT (PEL): The maximum 8 hour time weighted average of any airborne contaminant to which an employee may be exposed. At no time shall the exposure level exceed the ceiling concentration for that contaminant as listed in 29 CFR 1910 Sub Part Z.

PERSONAL MONITORING: Type of administrative control that involves the worker's wearing a badge or other sampling device to measure exposure to a chemical hazard in the workplace.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Equipment that protects the individual who wears it by placing barrier between that individual and a hazard; includes protective eyewear, face shields and masks, gloves, boots, hats, clothing, and respirators.

PHYSICAL HAZARD: Any chemical material that can cause fire, explosion, violent chemical reactions, or other similarly hazardous situations.

APPENDIX C
ABBREVIATIONS

AMV	Army Motor Vehicle
ATVs	All-terrain Vehicles
CAIG	Centralized Accident Investigation - Ground
CFR	Code of Federal Regulations
COR	Contracting Officers Representative
DA	Department of the Army
DCA	Directorate of Community Activities
DHR	Directorate of Human Resoruces
DPW	Directorate of Public Works
DOC	Directorate of Contracting
DOD	Department of Defense
EAMC	Eisenhower Army Medical Center
FTX	Field Training Exercise
GSA	General Services Administration
HHIM	Health Hazard Information Module
HRD	Human Resources Directorate
SBSD	Signal Branch Safety Division
IH	Industrial Hygiene
MI	Military Intelligence
MOS	Military Occupational Specialty
MRC	Motorcycle Rider Course
MSDS	Material Safety Data Sheet
MSF	Motorcycle Safety Foundation
NCO	Noncommissioned Officer
NRC	Nuclear Regulatory Commission
NSN	National Stock Number
OSHA	Occupational Safety and Health Administration
PCE	Protective Clothing and Equipment
PMS	Preventative Medicine Service
POV	Privately Owned Vehicle
SOHAC	Safety and Occupational Health Advisory Council
SOHI	Safety and Occupational Health Inspection
SOP	Standing Operating Procedure
TRADOC	U.S. Army Training and Doctrine Command
UCMJ	Uniform Code of Military Justice
WBGT	Wet Bulb Globe Temperature

EYEWASH

Emergency Showers and Eyewash Stations

- Why are emergency showers or eye wash stations important?
- What does the law say?
- What is considered to be a 'flushing fluid'?
- How long should the contact area be rinsed/flushed?
- What type of equipment should I install?
- What specification should the equipment meet?
  - Emergency Showers
  - Eyewash and Eye/Face Wash Stations
  - Personal Wash Stations
  - Drench Hoses
  - Combination Units
- Where should the emergency equipment be located?
- What temperature should the water be?
- What are examples of areas that may require this equipment?
- What other factors should I consider when selecting and using this type of emergency equipment?
  - Potentially hazardous substances in the immediate work area
  - Number of workers in an area with a hazardous substance
  - Isolated workers
  - Comfort and warmth
  - Quality of the Flushing Fluid
  - Neutralized Solutions
- Are there any limitations I should be aware of?
  - Plumbed Emergency Showers and Eyewash Stations
  - Portable, Self-Contained Eyewash Stations
  - Eyewash Bottles
- When should equipment be inspected and maintained?
- What type of training should the workers receive?

▲Why are emergency showers or eye wash stations important?

The first 10 to 15 seconds after exposure to a hazardous substance, especially a corrosive substance, are critical. Delaying treatment, even for a few seconds, may cause serious injury.

Emergency showers and eyewash stations provide on-the-spot decontamination. They allow workers to flush away hazardous substances that can cause injury.

Accidental chemical exposures can still occur even with good engineering controls and safety precautions. As a result, it is essential to look beyond the use of goggles, face shields, and procedures for using personal protective equipment. Emergency showers and eyewash stations are a necessary backup to minimize the effects of accident exposure to chemicals.

Emergency showers can also be used effectively in extinguishing clothing fires or for flushing contaminants off clothing.

▲What does the law say?

Consult your local occupational health and safety agency in your jurisdiction and check relevant legislation for any requirements to install this equipment. Currently there is no Canadian standard for the design or placement of eyewash stations or emergency showers. As a result, the American National Standards Institute (ANSI) Standard Z358.1-1998 "Emergency Eyewash and Shower Equipment" is generally used as a guide.

Note - since there is no Canadian standard for emergency showers and eyewash stations, the U.S. ANSI Standard Z358.1-1998 was used in preparing this document. Therefore, the reference values used in this document are in inches, US gallons, degrees Fahrenheit, etc. The converted values in metric units, Canadian gallons, etc. are rounded-off figures.

▲What is considered to be a 'flushing fluid'?

The ANSI standard defines "flushing fluid" as any of potable (drinking) water, preserved water, preserved buffered saline solution or other medically acceptable solutions. Local laws may apply in some cases. This document will use the term "water" to mean any of these acceptable flushing fluids unless otherwise specified.

▲How long should the contact area be rinsed/flushed?

For emergency showers and eyewash stations to be effective, the American National Standards Institute (ANSI) Standard for Emergency Eyewash and Shower Equipment (ANSI Z358.1-1998) recommends that the affected body part must be flushed immediately and thoroughly for at least 15 minutes using a large supply of clean fluid under low pressure. Water does not neutralize contaminants -- it only dilutes and washes them away. This is why large amounts of water are needed.

However, other references recommend a minimum 20-minute flushing period if the nature of the contaminant is not known. The flushing or rinsing time can be modified if the identity and properties of the chemical are known. For example:

- a minimum 5-minute flushing time is recommended for mildly irritating chemicals,
- at least 20 minutes for moderate-to-severe irritants,
- 20 minutes for non-penetrating corrosives, and
- at least 60 minutes for penetrating corrosives.

Non-penetrating corrosives are chemicals which react with human tissue to form a protective layer which limits the extent of damage. Most acids are non-penetrating corrosives. Penetrating corrosives, such as most alkalies, hydrofluoric acid and phenol, enter the skin or eyes deeply. Penetrating corrosives require longer water flushing (a minimum of 60 minutes) than non-penetrating corrosives (a minimum of 20 minutes).

In all cases, if irritation persists, repeat the flushing procedure. It is important to get medical attention as soon as possible after first aid has been given. A physician familiar with procedures for treating chemical contamination of the eyes and body should be consulted.

Note: The total amount of water in self-contained systems should exceed the volume required to deliver water at the recommended flow rates and flushing times.

▲What type of equipment should I install?

Emergency showers, also known as drench or deluge showers, are designed to flush the user's head and body. They should **not** be used to flush the user's eyes because the high rate or pressure of water flow could damage the eyes in some instances. Eyewash stations are designed to flush the eye and face area only. There are combination units available that contain both features: a shower and an eyewash.

The need for emergency showers or eyewash stations is based on the properties of the chemicals that workers use and the tasks that they do in the workplace. A job hazard analysis can provide an evaluation of the potential hazards of the job and the work areas. The selection of protection --

emergency shower, eyewash or both -- should match the hazard. P3

In some jobs or work areas, the effect of a hazard may be limited to the worker's face and eyes. Therefore, an eyewash station may be the appropriate device for worker protection. In other situations the worker may risk part or full body contact with dangerous substances. In these areas, an emergency shower may be more appropriate.

A combination unit has the ability to flush any part of the body or all of the body. It is the most protective device and should be used wherever possible. This unit is also appropriate in work areas where detailed information about the hazards is lacking, or where complex, hazardous operations involve many chemicals with different properties. A combination unit is useful in situations where there are difficulties handling a worker who may not be able to follow directions because of intense pain or shock from an injury.

▲What specification should the equipment meet?

Note: All dimensions and measurements are taken from the American National Standards Institute (ANSI) standard Z358.1-1998 "Emergency Eyewash and Shower Equipment".

Although portable models are available, it is always a good practice to select a plumbed model whenever possible. Portable models should be able to deliver the same volumes of water, as well as meet the dimensions for plumbed models, as specified in the standard. However, portable stations are necessary for mobile crews, temporary locations, or when the plumbed model is under repair. In order to prevent any secondary eye infections, the water in self-contained models should be treated to prevent bacterial growth in the water itself. Changing the water supply weekly is another good preventative measure.

▲Emergency Showers

The emergency shower should deliver a pattern of water with a diameter of at least 50.8 cm (20 inches) at 152 cm (60 inches). This diameter ensures that the water will come into contact with the entire body - not just the top of the person's head. ANSI also recommends the shower head be between 208.3 and 243.8 cm (82-96 inches) from the floor. The minimum volume of spray should be 75.7 litres/minute (20 gallons/minute) for a minimum time of 15 minutes.

The shower should also be designed so that it can be activated in less than 1 second, and it remains operational without the operator's hand on the valve (or lever, handle, etc.). This valve should not be more than 73.3 cm (69 inches) in height. If enclosures are used, ensure that there is an unobstructed area of 86.4 cm (34 inches) in diameter.

▲Eyewash and Eye/Face Wash Stations

Eyewash stations should be designed to deliver fluid to both eyes simultaneously at a volume of not less than 1.5 litres/minute (0.4 gallons/minute) for 15 minutes. However, the volume should not be at a velocity which may injure the eyes. The unit should be between 83.8 and 114.3 cm (33 to 45 inches) from the floor, and a minimum of 15.3 cm (6 inches) from the wall or nearest obstruction.

The user should be able to open their eyelids with their hands and still have their eyes in the liquid. As with the shower, the unit should also be designed so that it can be activated in less than 1 second, and it remains operational without the operator's hand on the valve (or lever, handle, etc.) with the valve being located in an easily located place. Since the nozzles to eyewash stations typically need to be protected from airborne contaminants, the units are to be designed such that the removal of these covers should not require a separate motion by the user when the unit is activated.

▲Personal Wash Stations

Designed to deliver flushing fluid immediately, personal wash stations can be used while transporting the victim to the permanent eyewash station or medical facility. These stations do not replace the requirement to have a 15 minute-supply eyewash station. The expiry date of the fluid should be printed permanently on the unit.

▲Drench Hoses

This type of equipment is usually considered to be secondary to proper emergency showers and eyewash stations (e.g., having a drench hose does not replace the need for showers/stations). Drench hoses may be used to "spot" rinse an area when a full shower is not required, to assist a victim when the victim is unable to stand or is unconscious, or to wash under a piece of clothing before the clothing is removed.

The drench hose should be able to deliver a volume of 11.4 litres/minute (3.0 gallons/minute) for a minimum of 15 minutes.

▲Combination Units

This name refers to equipment that shares a common plumbing fixture. Any of the fixtures such as shower, eyewash, eye/face wash or drench hose may be in this combination, but most commonly it refers to a shower and an eye wash station. It is important that pressure and volume requirements for each piece of the unit (as described above) are in compliance with the code.

▲Where should the emergency equipment be located?

To be effective, the equipment has to be accessible. ANSI recommends that a person be able to reach the equipment in no more than 10 seconds. In practical terms, consider that the person who needs the equipment will be injured, and may not have use of their vision. Recommendations for this distance in linear terms range from 15 to 30 metres (50 to 100 feet).

However, the "10 second" rule may be modified depending on the potential effect of the chemical. Where a highly corrosive chemical is used, an emergency shower and eyewash station may be required within 3-6 metres (10-20 ft) from the hazard. These units should be installed in such a way that they do not become contaminated from corrosive chemicals used nearby.

The location of each emergency shower or eyewash station should be identified with a highly visible sign. The sign should be in the form of a symbol that does not require workers to have language skills to understand it. The location should be well lit.

Other recommendations include that the emergency shower or eyewash station should:

- be located as close to the hazard as possible
- not be separated by a partition from the hazardous work area.
- be on an unobstructed path between the workstation and the hazard. (Workers should not have to pass through doorways or weave through machinery or other obstacles to reach them.)
- be located where workers can easily see them - preferably in a normal traffic pattern.
- be on the same floor as the hazard (no stairs to travel between the workstation and the emergency equipment)
- be located near an emergency exit where possible so that any responding emergency response personnel can reach the victim easily.
- be located in an area where further contamination will not occur
- provide a drainage system for the excess water (remember that the water may be considered a hazardous waste and special regulations may apply).
- not come into contact with any electrical equipment that may become a hazard when wet, and
- be protected from freezing when installing emergency equipment outdoors.

▲What temperature should the water be?

The 1998 ANSI standard recommends that the water be "tepid" but does not give a specific temperature range. In general, water temperatures in the range 27-35C (about 80- 95F) are considered suitable with temperatures in the higher part of the range if extended periods of eye irrigation or showering are required.

Remember that any chemical splash should be rinsed for a minimum of 15 minutes but rinsing time can be up to 60 minutes. The temperature of the water should be one that can be tolerated for the required length of time. Water that is too cold or too hot will inhibit workers from rinsing or showering as long as they should. In addition, water that is too hot may add to the skin or eye damage caused by the accidental exposure to the chemical. In some cases, the heat of the water may also cause a chemical reaction. Consult with your medical advisor for further advise.

Install anti-scalding devices (temperature control valve), constant flow meters, and other devices that will help maintain a constant temperature and flow rate. For cold or outdoor locations, emergency showers with heated plumbing are available.

▲What are examples of areas that may require this equipment?

Work areas and operations that may require these devices include:

- battery charging areas,
- laboratories,
- spraying operations,
- high dust areas,
- dipping operations, and
- hazardous substances dispensing areas.

▲What other factors should I consider when selecting and using this type of emergency equipment?

The following factors should also be considered as part of a hazard analysis when decisions are being made about the selection and use of emergency showers, eyewash stations or combination units:

▲Potentially hazardous substances in the immediate work area

All hazardous substances need to be properly identified. A review of MSDSs and labels can help to evaluate the hazard. To select the appropriate eyewash and shower equipment, you must know about the chemicals you use and their potential risks!

▲Number of workers in an area with a hazardous substance

More than one emergency shower or eyewash station may be required in an area where many workers use hazardous substances. Evaluate how many workers are using the hazardous chemicals, and provide more equipment where necessary to ensure the each worker's protection.

▲Isolated workers

The installation of an audible or visual alarm can alert other workers when the emergency shower or eyewash station is being used. This is especially important if only one worker happens to be working in that area. A victim may need help in getting to the eyewash if temporarily blinded. Some companies connect valves electrically to warning lights or buzzers in central areas.

▲Comfort and warmth

Extra overalls and foot covers should be stored near emergency showers. Clothes contaminated with corrosive or toxic chemicals need to be removed from the injured person. Consider installing a privacy curtain (but remember to maintain the 'obstacle free' diameter dimension as stated in the ANSI standard.)

▲Quality of the Flushing Fluid

Changing the fluid in self-contained systems frequently and cleaning the units regularly can prevent inadvertent use of contaminated fluid. Refer to the manufacturer's instructions for further details. Even in plumbed eyewash stations, the water may contain contaminants such as rust, scale and chemicals. Systems should be flushed and cleaned regularly.

Neutralized Solutions

Eyewash bottles and some portable units cannot supply enough fluid to adequately dilute and wash away contaminants. The use of buffered solutions can improve the efficiency of the portable eyewash because these solutions can increase the first aid potential of the small amount of fluid, and can partially neutralize the contaminant.

Are there any limitations I should be aware of?

Plumbed Emergency Showers and Eyewash Stations

Studies have shown that despite the 15-minute flushing requirement, users usually flush exposed body parts five minutes or less. The reasons were always related to the extreme discomfort users experienced using cold water. The water temperature in plumbed systems can go as low as 7C (45F), depending on the location and time of year..

Also, drinkable tap water may not provide the best flushing solution. Tap water may contain many contaminants and could aggravate the injured body part. Some municipal water supplies also contain chlorine which can irritate and leach salt from the eye tissue. As well, tap water may contain rust, scale and chemicals. Running the water continually keeps the water line fresh. Plumbed emergency eyewash stations should use water that is periodically tested and treated to remove chemical contaminants.

Portable, Self-Contained Eyewash Stations

Portable, self-contained eyewash stations have a limited amount of fluid. As a result, maintenance is critical to ensure that units are fully charged at all times.

These eyewash stations also require ongoing maintenance of the buffered saline solution. The agents used to control bacterial growth are effective for certain limited periods of time. Also, small amoebae capable of causing serious eye infections have been found in portable and stationary eyewash stations. Consequently it is important to monitor the shelf life of the solution and replace the solution when it has expired.

Eyewash Bottles

Eyewash bottles or personal eyewash units supplement plumbed and self-contained stations, but in no way can replace them. They are portable and permit immediate flushing of contaminants or small particles. However, eyewash bottles are very difficult for the user to handle, especially when alone and when both eyes have been exposed. (e.g., holding the eyelids open while handling the unit is awkward). Also, one bottle cannot flush both eyes simultaneously. Since the fluid supply lasts for only a short period of time, the bottle may not able to wash the eyes sufficiently.

The main purpose of such a unit is to supply immediate flushing. Once accomplished, the user should proceed to a self-contained or plumbed eyewash and flush for the required flushing/ rinsing period.

When should equipment be inspected and maintained?

One worker in the work area should be designated responsible for inspecting and operating (activating) the emergency shower, eyewash station, combination units, and drench hoses weekly. This worker should keep a signed, dated record. Also, individual workers should be encouraged to check the operation of the emergency shower or eyewash station daily for their own protection. The ANSI standard recommends a complete inspection on an annual (yearly) basis.

Preventive maintenance inspections should be done every six months to check for such problems as valve leakage, clogged openings and lines, and adequacy of the fluid volume. A work record of these inspections should be kept. Replacement parts should be kept on hand to prevent the system from becoming non-functional. If the system breaks down for any reason, the workers in the area should be properly warned and protected.

. ersonal eyewash equipment should be inspected and maintained according to the manufacturer's instructions and at least annually for overall operation.

▲What type of training should the workers receive?

All workers require instruction in the proper use and location of emergency showers or eyewash stations before any emergencies occur. It should never be assumed that workers are already aware of the proper procedures. Written instructions should be made available to all workers and posted beside the emergency shower and eyewash station. Part of the instructional process should include a "hands-on" drill on how to find equipment.

The wearing of contact lenses can be dangerous because chemicals can become trapped under a contact lens. Any delays caused by removing contact lenses in order to rinse eyes could result in injury. Training should include instruction in contact lens removal.

▲*Document last updated on December 3, 1999*

SEARCH Help

Please direct questions or comments about this service to webmaster@ccohs.ca
Copyright © 1997-2000 Canadian Centre for Occupational Health and Safety

250 Main Street East, Hamilton, Ontario, Canada L8N 1H6
Phone: (905) 572-4400; 1-800-263-8466; Fax: (905) 572-4500

P8

Fullbright, Reuben R.

>m: Rusek, Richard D.
>t: Friday, April 14, 2000 11:03 PM
Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: Regarding ANSI Standard Z358.1

The following specifications are taken directly from the ANSI Z358.1-1998 standard.

SHOWERS (Plumbed and Self-Contained)

Plumbed Shower: An emergency shower permanently connected to a source of potable water.

Self-Contained Shower: A shower that contains its own flushing fluid, and must be refilled or replaced after use.

The specifications below are for plumbed showers only.

1. Heads

A. Positioned 82"--96" from floor.

B. Spray pattern will have a minimum diameter of 20" at 60" above the floor.

C. Flow Rate=20 gallons per minute (GPM) at 30 pounds per square inch (PSI).

The center of the spray pattern shall be located at least 16 inches from any obstruction.

. Valves

A. Activate in 1 second or less.

B. Stay-open valve (no use of hands).

C. Valve remains on until the user shuts it off.

3. Installation

A. Shower shall be located in an area that requies no more than 10 seconds to reach.

*Consult a medical professional to determine the appropriate distance for harsh acids and caustics (high hazard=closer distance).

B. Shower location shall be in a well-lit area and identified with a sign.

C. Shower shall be located on the same level as the hazard.

4. Maintenance and Training

A. Plumbed showers will be activated weekly to verify correct operation.

. All employees who might be exposed to a chemical splash shall be trained in the use of the equipment.

. All showers shall be inspected annually to make sure they meet with ANSI Z358.1 requirements.

P9

'k Rusek
.S Operations
Ph: (706) 791-6423
DSN: 780-6423

P 10

Fullbright, Reuben R.

n: Skvarca, Neal M.
: Friday, December 08, 2000 3:33 PM
Fullbright, Reuben R.; Ellis, William E. Jr; Combs, Dorsey D.; Griffin, Gordon D.; Pavliscsak, James V.; Poston, Charles F.
Subject: Battery Checks

Checking of batteries will be discontinued until Eyewashes have been repaired.
Kc
DPW UMCS
(706)791-6423

P11

Fullbright, Reuben R.

m: Fullbright, Reuben R.
: Monday, February 26, 2001 1:27 PM
Pavliscsak, James V.
Cc: Fullbright, Reuben R.
Subject: Eyewash / Showers

As requested I checked the eyewash/showers when I was at the power plants. With both on, as they should be to check the East unit takes 122 seconds to fill a 5 gallon bucket and the West unit 47 seconds to fill a 5 gallon bucket. Both eyewashes quit working with showers turned on. ANSI standard calls for all units to operate at the same time with at least 20 GPM at showers.
Reuben

P 46

Fullbright, Reuben R.

1:	Pavliscsak, James V. Fullbright, Reuben R.
.:	Thursday, March 01, 2001 3:05 PM
Subject:	Read: Eyewash / Showers

Your message

To:	Pavliscsak, James V.
Cc:	Fullbright, Reuben R.
Subject:	Eyewash / Showers
Sent:	2/26/2001 1:27 PM

was read on 3/1/2001 3:05 PM.

P 13

Brenda Reed

From: "Reed, Brenda L." <reedb@gordon.army.mil>
To: "'BrenReed'" <brenreed@knology.net>
Sent: Friday, November 03, 2000 2:22 PM
Subject: FW: Batteries at Power Plant

Brenda Reed
UMCS Operations
791-6423

> -----Original Message-----
> From: Reed, Brenda L.
> Sent: Friday, November 03, 2000 2:21 PM
> To: Pavliscsak, James V.
> Cc: Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca,
> Neal M.; Fullbright, Reuben R.; Ellis, William E. Jr
> Subject: Batteries at Power Plant
>
> The batteries are checked in all three plants. They are all full. I
> think you are making a mistake sending one person alone to check these
> batteries. Especially since they are in an enclosed area and if you got
> splashed may not be able to get out of the relay room with out hurting
> your self more.
>
> Brenda Reed
> UMCS Operations
> 791-6423
>

P 14

Fullbright, Reuben R.

From: Rusek, Richard D.
Sent: Saturday, June 17, 2000 8:02 AM
To: Pavliscsak, James V.
Cc: Combs, Dorsey; Ellis, William; Fullbright, Reuben; Griffin, Gordon; Poston, Charles; Reed, Brenda; Rusek, Richard; Skvarca, Neal
Subject: RE: Generator batteries

Mr. Pavliscsak,

I am confused by this email. Last instructions you gave me, and as a result of Mr. Fullbright's pants being ruined, I was to put in a DA Form 2407 to have Johnson Controls perform battery maintenance. Also, since the emergency eye wash/shower stations do not deliver the minimum amount of water flow, are we neglecting safety if we open the batteries and start checking them?

Rick

-----Original Message-----
From: Pavliscsak, James V.
Sent: Thursday, June 15, 2000 5:24 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Generator batteries

We are lax in maintaining the generator batteries. I know with all the construction and not running units it's easy to forget however we need to continue to do our job.

Bring our records up to date and order distilled water as needed to perform operator maintenance on batteries.

P15

Fullbright, Reuben R.

n:	Griffin, Gordon D.
:	Wednesday, June 21, 2000 2:05 AM
	Pavliscsak, James V.
Cc:	Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject:	RE: Generator batteries

I filled out the 2407 to have the batteries serviced as per your instructions and now you said we are lax in maintaining the batteries are
we to maintain them or not? If we are I will take it upon myself to order the proper safety equipment for servicing and maintaining them.
Please let me know which way we are going.

Gordy

-----Original Message-----
From: Pavliscsak, James V.
Sent: Thursday, June 15, 2000 5:24 PM
To: - Combs, Dorsey; - Ellis, William; - Fullbright, Reuben; - Griffin, Gordon; - Poston, Charles; - Reed, Brenda; - Rusek, Richard; - Skvarca, Neal
Subject: Generator batteries

We are lax in maintaining the generator batteries. I know with all the construction and not running units it's easy to forget however we need to continue to do our job.

Bring our records up to date and order distilled water as needed to perform operator maintenance on batteries.

MEETINGS

p1

To: Oglesby, Curtis D.
From: Reed, Brenda L.
Sent: Sunday, April 16, 2000 12:57 AM
Subj: Mandatory meeting Apr 6th, 2000

Mr. Oglesby,
This email pertains to the meeting you called on April 6th. I am not sure what the meeting was for as nothing was resolved because the issues we have had for the past 10 months could not be hashed out, you just kept saying "this is not the time or place, send me an email."

Visa card: you stated not the time or place to discuss it, send me an Email. I have been talking to you about this Visa card, and like Mr. Pavliscsak, my complaints are ignored. In the June meeting when this was brought up for me to handle supplies we both know what the crew thought. We would be able to order supplies/material that was needed without it taking months. The only thing that changed was it took even longer. I asked you what was the reason why Ms Newman had to send the approved request back to Mr. Pavliscsak instead of me the cardholder. The first time you said you would check on it, the second time you had no idea what I was talking about. Then James changed the ordering procedure again. I felt I could not be held accountable for this card, be audited and have money come out of my check if something was wrong with an order. I spent the month of March letting every one know I was not going to keep this card under the ever-changing conditions. The only thing that happened was I received a letter from the Leadsman stating I had no choice and he would propose disciplinary actions be taken against me. This should have been discussed in the meeting but you said no. I will now do what I have to do.

Blue jeans: you stated not the time or place to discuss it, send me an Email. This is another issue that has been going on for a long time and can't be resolved if it can't be discussed; so far you have not talked to Reuben about this issue.

Safety training: you stated we had had more than enough training. We are all wondering what official training, that we have had besides the Original fast training when they were installed 5 years ago. Each year we learn more and more how dangerous this plant is and how little we know. Not to mention if someone was seriously hurt, there is no safety equipment there to keep someone alive until the paramedics arrive.

Safety shoes, you said nothing, Mr. Pavliscsak said he wanted to see what he was authorizing. In my letter he gave me on 31 March he stated there was only two authorizing authorities, Mr. Oglesby and Mr. Jones. So what is he authorizing? The request has only been in since the 1st. of Nov. Basically the same shoes that are ordered every year.

Safety glasses, Mr. Pavliscsak stated he was waiting to hear from safety. Again we have been ordering the same style glasses since I have been here (5 years in June) we do believe that the hospital knows which frames we can choose from.

Overtime, Mr. Rusek stated we had been told that they said no overtime Allowed. When you asked him who "they" were twice and he did not know, You then asked who told him that and he said Mr. Pavliscsak. You did not say anything to clear the matter up.

You kept telling us we were good folks and had to learn to get along again. We all get along, probably better the last year than any other time. We don't know why you think we are not getting along with each other. We can not take the over "micro management" and everything is Mr. Pavliscsak's personal belongings. We have been to you several times on this matter alone and have not seen any results yet, except that the
screaming has stopped for the last 30 days.

You stated we have been told what the chain of command is. We have followed it to the letter. We left the meeting with the feeling that we had been told we could not go past you to get problems resolved. You also stated that Mr. Pavliscsak was our supervisor regardless of what CPO says. We have an email you sent when you became the chief that states you were our supervisor but we don't have anything in writing that says otherwise. Some how it seems if we are expected to send everything in an email that the least we have the right to expect is the same thing.

Job description, You stated that you could not see a grade increase or a change to a GS rating and that Mr. Pavliscsak was rewriting a new one. Since the operators asked for a desk audit of which we don't feel like we got. Mr. Rayle spent most of his time talking to Mr. Pavliscsak and maybe you and a total of two hours talking to two operators. I have learned that we can have OPM come in and do a desk audit. The proposal that Mr. Pavliscsak doesn't look much different than the one we already have, and at the moment are not too satisfactory.

We keep being told that good things are coming, changes are being made. We still don't know what things or changes are taking place. It has taken 5 years to pave the power plant and that was not because we needed it, it was because of environmental.

Now we have 3 more generators to operate. No one seems to want to listen to the people that know these generators better than anyone, but that is OK. We can not be held responsible if they fall apart while on line because no one is there. We have all worked hard trying to keep that plant running properly.

One thing that did not get brought up in the meeting was we have been told for the past 5 years, or since the last 3 people were hired that 1st and 2nd shift must have two operators on duty. Now it seems not to matter any more. It appears that overtime would have to be paid to cover shifts from time to time. The majority of leave is put on the schedule in Jan for the year. You mentioned about people taking off when ever they felt like it. If you were referring to the Monday before I have a signed approved request from Mr.Pavliscsak to be off.

Calling in on sick leave or emergency leave. When someone calls Mr. Pavliscsak he does not tell the other operator on duty that his partner will not be in. Good example is my Mother died last Nov. I called Mr. Pavliscsak, I came back to work 4 days later and no one had any idea where I was or why. Since the operators on duty are DPW after hours (According to the job description) that is who needs to be called, and the operator should call the leadsman if a need to know arises.

I am really sorry, that we as a group came to you with some serious problems and you wanted to perceive it as a which hunt, it was not and was never intended to be. Some how things have got to change in UMCS. We have no problem with compromising but that doesn't seem likely to happen either. If we can't discuss the things that are wrong in a meeting with everyone there, then please tell me when it can be.

: >
: > Brenda Reed
: > UMCS Operations
: > PWD,DPW
: > 706-791-6423/4148
: >

P4

> -----Original Message-----
From: Reed, Brenda L.
Sent: Saturday, September 11, 1999 3:48 PM
To: Reed, Brenda L.
Cc: 'BrenReed'; Fullbright, Reuben R.
Subject: Aug 31 meeting

Aug. 31, 1999
1400 - 1545 hr.

Mr. Oglesby called a meeting to discuss problems raised at June 10th meeting.

Present were: Neal S.,Brenda R.,Rick R.,Gordy G.,Doug C.,Reuben F., Charlie P. and Mr. Oglesby.

Mr. Pavliscsak declined to be at the meeting.
Bill E. had pulled a midnight shift and was unable to attend due to the time of the meeting.

Mr. Oglesby stated a lot had been done several times, but did not specify exactly what had been done. It was asked very clearly what had been done to correct the problems that UMCS were having because we had not seen any change at all.

Mr. Oglesby stated that he could not see an upgrade from WG11 to WG12. That he had been talking to personnel for guidance. That he had done all of this on his off time.
We would like to know how this can be done, when CPO personnel at Ft. Gordon are gone by 1530hr.

Mr. Oglesby said he would not add the words POWER PLANT OPERATOR to our job description. That he would write a letter if any one needed one to apply for a position some where, or put a letter in the file.

Mr. Oglesby stated that it looked like we were beating a dead horse and if we wanted he would call for a desk audit. All agreed for Mr. Oglesby to call for a desk audit.

At this point Mr. Fullbright read to Mr. Oglesby the OPM Regs. stating that Mr. Brown or the Col. Could change our job classification. Mr. Fullbright showed Mr. Oglesby a letter from Mr. Stalcup, when he was chief, to Mr. Pavliscsak he had recommended that the UMCS operators be changed/upgraded to GS-11's. Mr. Oglesby only stated that he had not talked to Mr. Brown yet.

Mr. Oglesby remarked several times that Mr. Pavliscsak was asking for input just as he (Mr. Oglesby) asked his other people for input so that he could do his job. It was pointed out several times that there is a big difference in INPUT and doing your leaders full job description on a daily basis.

We have shown both job description (operators and leader's) the operators are doing both job descriptions plus running a power plant. Every where else there is one grade higher given for shift responsibility. Reply was we are just beating a dead horse, I hear you.

Mr. Oglesby when asked about training, requests had been submitted to Mr. Pavliscsak and copied to Mr. Oglesby, no answer has ever been received.

Mr. Oglesby said that Patsy would show us how to fill out a 1556 form. Kathy from Environmental is working up a training session in the next couple of weeks. It was not stated what type of training. This still did not answer the questions on training. OSHA, Military and the Union are very specific on what training, people must have, especially at a power plant. Answer to this was we won't be down at the site except to start and stop the units next summer. (this needs to be discussed at length).

Ms. Reed brought up again that Mr. Pavliscsak was still harassing Rueben. All operators agreed. Reply was I am still talking to Jim.

Mr. Oglesby stated no projects until after generator season. Mr. Oglesby stated that we are not doing UMCS work. From now on J/C would run conduit and pull wire and we would only terminate the cabinets.

Mr. Fullbright brought up that email was still disappearing from some of the operators personal folders. Reply was make a hard copy.

Ms. Reed stated that when ever you had 8 people or an entire section have a meeting with a supervisor not once but twice then there were real problems that could not be ignored any longer. That she was ready to file a grievance if some improvement was not shown in the next two weeks.

Typed by Brenda Reed

p6

-----Original Message-----
From: Reed, Brenda L.
Sent: Thursday, June 24, 1999 5:10 PM
To: Oglesby, Curtis D.
Subject:June 10th meeting with Curt/comments on 24 June 99

Below are the notes I took at our meeting. Before I send a copy of them to Curt, please look over them and let me know if I left out anything or heard it different.

Thanks

June 10, 1999
1700-1920hrs.

At the request of the Operators of UMCS, Mr. Oglesby called a meeting to discuss problems in the section.

Reuben F., Brenda R., Gordon G., Charlie P., Rick R., Doug C., Neal S., Bill E., and Mr. Oglesby present.

POWER PLANT: We stated that we wanted this put in our job descriptions at the very least and possible upgrade. That we were not following, OSHA regulations, Army regulations for military installations, or the Union regulations. None of the operators are certified, none have had the standard basic safety training, such as CPR. The only thing that was stressed was that the operators would go in and start the plant and would come back to the UMCS control room to monitor. It was brought up to have an emergency stop installed in the UMCS control room in case the plant needed to be taken off line ASAP. It was stressed to Mr. Oglesby that it was highly recommended by the personnel that did the upgrade to plant one that the plant should not be left unattended and monitored from a remote area, due to the age of the generators. Mr. Oglesby took the stand that the hospital generator came on line by its self and was monitored. We feel there is a big difference between a single generator supplying bare necessities and life support and a 9.5-megawatt power plant. Nothing decided on training for certification or safety at this time.

JOB DESCRIPTION: It was pointed out that over 50% of the job that the UMCS operators are doing is the Group Leaders job and examples were given. Design, reports, meetings with contractors, the core and design. Going over contracts and finding problems and solutions. It was stated that no one objected to this if it was also included in UMCS Operators job description. If we were going to do the work we would like to get the credit. It was stated that if for some unknown reason that DPW or UMCS were contracted out it would greatly affect our job potential.

Mr. Oglesby stated that he understood and was not aware of the amount of work that the operators did that was not under their job description and had always felt it should be under the 856 series. That he would research on

upgrading our WG status or changing us to a GS status. Would probably take a desk audit. There would be no new projects between now and the end of the peak running season.

It was brought up that at least two UMCS operators should be sent to NT training, which are a 3-day course and a fiber optic course. We are installing more fiber optic every day. These two courses alone are essential to UMCS operations. At present we have to depend on a contractor from out of town if there is a problem that needs correcting. If Morris is out of town and Mr. Pavliscsak is out of town we can be dead in the water. As it stands we did not get any training questions answered; the implication is there is no money.

MR. PAVLISCSAK: Our main question was "what is his job now" Reply was "essentially the same that it was before". We did not know what that was either. Mr. Oglesby explained it. Was not aware that the UMCS operators were doing the majority of the group leader job and not being allowed to
Do there own.

Mr. Oglesby stated that he was caught up on his priorities and would start coming to UMCS section more often. That he did not realize what had been going on, and that it took guts for all 8 operators to request a meeting with him and to speak up on problems that needed solving now.

COMPLAINTS: No objectives given at all. No priorities.
Being told to hang up the phone while talking to a customer, To be asked to come in to the office to be asked a very unimportant questions that could have waited.

Critized in front of peers
Being screamed at and belittled.
Threatened with if you don't like it, go out the gate
Discussing one employee with another
Not listening to problems, ideas or solutions.
Being pulled of a job to fax or copy a document
My way or no way

SUPPLIES: Ordering supplies or material may take up to three weeks for the order to be placed. We are told only order supplies that you need. If some one else needs them they can order their own. The next week that rule does
not apply. Request are sent back for something as simple as one may have put down the price is 5.10, when the order is called in the price may be 5.01. Instead of just changing it, it is returned to the requester to redo.
When it finally does come in, if you ordered it and off that day, then you never know it came in. Most things are kept in group leader's office locked up. If we run out of something on Fri. then it is Monday before you can find
Out if you have it on hand. When calling a GSA order each item has to be on a separate request. Elaine has said many times, that if you are ordering more : than one thing from a vender, that she would prefer it all on the same request. We have been told he does not care, he will

do it the way he wants it. Now we are signing for batteries to go in the flashlights.

Things have got to change, the morale of the UMCS operators can not go any lower. We asked for a meeting with our supervisor to be sure he was aware of the problems and to give him a chance to correct them. We are prepared to take the next step if improvement is not shown in a reasonable amount of time.

These notes were taken by Brenda Reed with a copy to the UMCS operators and Mr. Oglesby.

All operators agree on the notes listed above.

June 24,1999

As I was preparing to send e-mail to you on the notes of our meeting, James came into the control room. I copied my notes to a-drive and deleted the notes even out of the recycle bin. A short time later, James came back in a printed a copy of the meeting notes to you. Now, we don't care that James saw the notes, but feel that it was up to you to show them to him. After all it was addressed to you and not anyone else. I personally feel that I don't want to put anything on these computer's since they seem to belong to James only. I guess there is no such thing as respecting privacy.

Brenda

P9

Fullbright, Reuben R.

From: Fullbright, Reuben R.
Sent: Thursday, July 15, 1999 8:06 AM
To: Oglesby, Curtis D.
Cc: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr

Curt,
Since it looks like no action is being taken since our meeting and you asked for some time, it looks like time for us to follow up. You said in the meeting you were upset about another group taking problems up the line, without following proper chain. During our meeting we asked for an organizational chart and chain of command above DPW, since that was over a month ago and we have not received any information, don't get upset if chain is not followed.

Reuben

P 10

Fullbright, Reuben R.

From: Brown, Larry J.
Sent: Thursday, December 16, 1999 6:08 AM
To: Fullbright, Reuben R.
Cc: Oglesby, Curtis D.
Subject: RE: No Reply ?

Reuben, I immediately sent a note to Mr. Oglesby and asked him to personally talk to you about the problem. Issuing ultimatums only two days afterward seems to me to be quite unfair. While I have told you I do understand your lack of patience, I believe you will accomplish very little to improve the dialog with action like this. Please give Curt a chance to get with you. If you are unsatisfied with the response, then elevate it.

From: Fullbright, Reuben R.
Sent: Wednesday, December 15, 1999 4:49 PM
To: Brown, Larry J.
Cc: Fullbright, Reuben R.
Subject: No Reply ?

<<Message: Read: Requesting reply>>

Mr. Brown,

I sent you a note last Thursday and asked for a response, I noticed you read this note on Monday morning. I am yet to get an answer and am beginning to feel as ignored with this request as with the issues brought up in the meeting with Curt.

Since myself and others feel the time for action has come and gone, even to the point of taking legal action and since this started during Ellison's duty, I feel it necessary to inform Col. DeBow before further action. This is to let him know what is going on, what action we have seen, and how we at UMCS feel about things. This is also to keep him from being blind-sided if action is taken and as events unfold. I feel this is the fair thing to do. Thus, please have a meeting scheduled between UMCS and Col. DeBow as soon as convenient for him and when we can arrange to get UMCS here together. Thanks Reuben

P 11

Fullbright, Reuben R.

From: BrenReed [brenreed@knology.net]
Sent: Wednesday, September 29, 1999 12:58 AM
To: Brown, Larry J.
Subject: Re: Meetings

Reuben and I will look forward to meeting with you. I am on noon to eight and he is on days. So when ever you say we will be there. Thankyou for an update. It is nice to know we are not being ignored.

Brenda

EMAILS TO/FROM LARRY BROWN (retyped in order)

To: Brown, Larry J.
From: Reed, Brenda
Date: Sept 20,1999 @ 1:25am
Subj: Meetings

Mr. Brown,
The UMCS operators do not know if you are aware of the problems that exist in our section or not. Reuben Fullbright and myself would like to have a meeting with you. I have enclosed copies of the two meetings we have had with Mr. Oglesby. We do not feel that we are being taken seriously in these matters. Please do not put meeting with us off for to long. Mr. Fullbright is on midnight shift this week and I am on 4-12. We both could meet with you first thing any morning this week if possible. Thank you for your time.
(Forwarded the minutes of the two meetings with Curt)

To: Reed, Brenda
From: Brown, Larry
Date: Sept. 21, 1999 @8:08am
Subj: RE: Meetings

Since Curt has been out this week, I have not had a chance to get with him and get an update on what is happening. I also have a very busy schedule this week with TRADOC visitors and Planning Board briefings. I will get back to you soon. I assure you that you are being taken seriously and action is underway, but there are too few people to work things and too much to do, as I am sure you all understand as well as anyone. Please give us a few more days. I am aware that your patience is getting thin, but I do ask for a little more of what is left. Thanks.

To: Brown, Larry
From: Reed, Brenda
Date: Sept 21, 1999 @ 12:59pm
Subj: RE: Meetings

Next week Reuben will be on day shift and I will be on noon to eight starting Wednesday, so that would work out better for all three of us. Thank you for answering our email, at least we know someone is listening and not just ignoring the situation. We are not a bunch of hot heads, but like you said our patience is getting a little thin. One of the biggest problems that got us to where we are is no one above our level wants to let us know what is being done. We are not trying to put management on defense we just want what is right and just.

To: Reed, Brenda
From: Brown, Larry
Date: Sept 22,1999 @ 6:16am
Subj: RE: Meetings

I assure you I understand. Most of what has been presented, especially the training, is most doable and should be scheduled soon, but I am trying to leave it with the appropriate level to accomplish. The desk audit will be up to the CPAC, but I would not expect it to take more than a month once we talk to them (I am petty sure Curt has talked to them, but he has not given me a report). Neither he nor I will influence the outcome. Since Curt is going through another round of illness, it will be delayed some, but I will not let the effort stop. Please keep in touch. I am not letting anyone know you are communicating with me. Thanks.

To: Brown, Larry
From: Reed, Brenda
Date: Sept 22, 1999 @ 2:37pm
Subj: RE: Meetings

I am glad you are communicating with me. Our biggest hurdle is being told thing are being done, but no one ever says what is being done. We are trying to handle everything by the book. We are not out to get any one and I hope you do understand that. Something that can be handled now is the way James treats his section. He tells Curt that he asks for our input. That's not true. We are doing 100% of his job and being treated with no respect at all. I hope you will meet with Reuben and myself even if it is after the staff goes home or some where else. You need to know both sides, and then I think you will see we are not unreasonable people. We are proud to work for DPW and want to have good relations with all of Post. We hear James tell people that come through the customer comes first. That is not how he feels. If one of us is talking to a customer about a problem we are told to hang up. There is too much to write in an email. I will keep this between us but at some point you will have to say something to us all. Thanks.

To: Brown, Larry
From: Reed, Brenda
Date: Sept 29, 1999 @ 12:57 am
Subj: RE: Meetings

Reuben and I will look forward to meeting with you. I am on noon to eight and he is on days. So when ever you say we will be there. Thank you for an update. It is nice to know we are not being ignored.

To: Reed, Brenda
From: Brown, Larry
Date: Sept 29, 1999 @ 11:03am

Not easy to get you two away so we could talk with out it causing a problem. Tomorrow would be best for me (Thursday). When (other than from 1300-1500) would be best for you two, and where?

To: Reed, Brenda
From: Brown, Larry
Date: Oct. 6, 1999 @7:47am
Subj: RE: Meetings

Still looking for a time and place where we can meet. Things are working, and I will see that you get an update soon.

To: Brown, Larry
From: Reed, Brenda
Date: Oct 8, 1999 @ 4:44pm
Subj: RE: Meetings

Mon. or Tues. is the only two days that Reuben and I are working together on 4-12. Let us know if you want us here a little early. We could meet you at 2133 before reporting in here or go back up there as soon as we report in.

To: Reed, Brenda
From: Brown, Larry
Date: Oct 12, 1999 @ 6:10am
Subj: RE: Meetings

Sorry, I did not see the note till today. I will be at 2133 at 0730. If you do not get this in time, let me know the next available time.

To: Brown, Larry
From: Reed, Brenda
Date: Oct 14, 1999 @ 4:50pm
Subj: RE: Meetings

When I first read your note I thought you meant 0730 Fri. morning. Since rereading the note I am more confused if you had meant 7:30 Friday night or 0730 Tuesday morning, if that is the case it is a little hard at the end of ones shift week to make it back out here at that time in the morning. We do have another solution. This is my last 4-12 and Reuben comes on 12-8 tonight. Wed morning I come back on 7:30 to 4:00 and Reuben gets off at 0800. We could meet with you then. Like you said before patience are getting a little thin. You may want to reply to Reuben or to my house since I will be off. *Brenreed@knology.net*

To: Brown, Larry J.
From: Reed, Brenda
Date: Oct 29, 1999 @ 5:38pm
Subj: Meeting

I had to go to Fla. And take care of my Mother's funeral and did not get your last message until after the date. Reuben in on day shift all week and I am on 4-12 all week. He can stay over or I can come in early. It would be better if you called one of us for the time of the meeting, some times it is two days before I receive a message. Home phone is 364-4516. Brenda

---

Finally did have a meeting with Larry at 2133. Went into detail of the problems we were having and nothing was improving. He told us who applied for the job of facilities branch job and why he did not select the other candidates. He also stated that it was a big mistake to put Curt (Mr. Oglesby) in the chief's position, one reason was Curt (Mr. Oglesby) had no personnel experience behind him, and it looked good to have a handicap person in upper management. Mr. Brown said he had no idea that things were so bad in UMCS and would get it straight. When Mr. Brown found out that Mr. Pavliscsak knew he had met with Reuben and myself, he sent Rick Rusek an email stating **"now his hands were tied and could not do anything to help our situation"**. How Mr. Pavliscsak found out, was at 1550 Reuben was on his way to bldg 2133 to meet Mr. Brown and myself. Mr. Pavliscsak asked where he was going. No choice had to tell him. We never did understand all the secrecy in talking to Chief of DPW.

Fullbright, Reuben R.
From: Griffin, Gordon D.
Sent: Wednesday, September 29, 1999 9:55 PM
To: Fullbright, Reuben R.
Cc: Reed, Brenda L.; Griffin, Gordon D.
Subject: RE: information

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, September 23, 1999 4:12 AM
To: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: information

As some of you know, there may be a meeting in the near future. In order to make sure the facts are right, I need input from everybody on the following questions. In your opinion:
1. What brought about the problems/actions which are arising

The treatment of fellow workers, also degrading contractor employs and verbally belittling them in front of other personal no sop's in writing established , doing building point layout and system point layout and not having this as part of owe job description, , working in unsafe areas without proper training or safety programs in place.

2. How far are you willing to go to see results
what ever it takes to get something resolved before one of us gets killed, and to get paid for what we do

3. What action are you seeking

Job Description is rewritten with all the information correct that a UMCS operator does. An upgrade to the position. . The power plant to be a safer place to work, obtain the training that is needed and mandatory safety classes started.

4. What would you consider to be a fair compromise
Getting paid for what we do, and not having to put up with verbal abuse and having owe division supervisor understand what is
going on in his division.

Please answer and reply to me ASAP Reuben
PS This information will be consolidated so no one except us will know where each answer came from.

P 18

Fullbright, Reuben R.
From: Skvarca, Neal M.
Sent: Thursday, September 23, 1999 12:22 PM
To: Fullbright, Reuben R.
Subject: RE: information

1. lack OF RECOGNITION FOR WORK BEING DONE OUTSIDE OF JOB DESCRIPTION.
2. Whatever it takes
3. Compensation or grade increase to reflect work being done
4. Revamped job description and appropriate grade.

Kc

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, September 23, 1999 4:12 AM
To: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: information

As some of you know, there may be a meeting in the near future. In order to make sure the facts are right, I need input from everybody on the following questions. In your opinion:

1. What brought about the problems/actions which are arising

2. How far are you willing to go to see results

3. What action are you seeking

4. What would you consider to be a fair compromise

Please answer and reply to me ASAP Reuben

PS This information will be consolidated so no one except us will know where each answer came from.

Fullbright, Reuben R.
From: Poston, Charles F.
Sent: Saturday, September 25, 1999 5:20 PM
To: Fullbright, Reuben R.
Cc: Combs, Dorsey D.; Ellis, William E. Jr; Griffin, Gordon D.; Poston, Charles F.; Reed, Brenda L.; Rusek, Richard D.; Skvarca, Neal M.
Subject: RE: information

Reuben-

Rather than make another list, I'll just second Rick's- it seems to cover my concerns pretty fully.

There are two points Brenda raises that I am against:

One wave I have no interest in making is the shift rotation as I am very happy with the hours I work.

Another is the reprimand for James.
First, there are clearly established procedures for such action and there is no indication that any preliminary steps have been initiated by Mr. Oglesby in that direction. James has as much right to due process as we do.
Second, I don't support the "Get James" movement that has, apparently, taken over our efforts to improve our jobs. I agree that he is a big part of our problems, but the task at hand isn't a lynching- it is a serious effort to improve working conditions and benefits for UMCS and any efforts wasted on turning it into a personality conflict or witch-hunt will seriously detract from our primary objective.

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, September 23, 1999 4:12 AM
To: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: information

As some of you know, there may be a meeting in the near future. In order to make sure the facts are right, I need input from everybody on the following questions. In your opinion:

1. What brought about the problems/actions which are arising

2. How far are you willing to go to see results

3. What action are you seeking

4. What would you consider to be a fair compromise

Please answer and reply to me ASAP Reuben
PS This information will be consolidated so no one except us will know where each answer came from.

Fullbright, Reuben R.
From: Ellis, William E. Jr
Sent: Friday, September 24, 1999 6:01 PM
To: Fullbright, Reuben R.
Cc: Ellis, William E. Jr
Subject: Information

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, September 23, 1999 4:12 AM
To: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: information

As some of you know, there may be a meeting in the near future. In order to make sure the facts are right, I need input from everybody on the following questions. In your opinion:

1. What brought about the problems/actions which are arising
   a. Duties that are not indicated in our position description.
   b. No one will address safety issues.
   c. Not haveing proper training in sever areas that we work.
   d. No one will tell us anything that is going on in our department.

2. How far are you willing to go to see results
   a. Whatever it takes.

3. What action are you seeking
   a. First of all is safety
   b. Job description should be brought up to date, with all the duties that we are doing.
   c. More hands on training for generators.
   d. Management's guarantee that we will not be harassed and that guidelines will be followed (shift changes, hours of operation, job responsibility...etc.)

4. What would you consider to be a fair compromise
   a. Safety
   b. Revised PD reflecting grade of WG-12 or WG-13
   c. At least one-grade promotion to be guaranteed for all in section.
   c. Guarantees against harassment by group leader.

Please answer and reply to me ASAP Reuben
PS This information will be consolidated so no one except us will know where each answer came from.

P21

Fullbright, Reuben R.

---

om: BrenReed [brenreed@knology.net]
Sent: Friday, September 24, 1999 1:29 AM
To: Fullbright, Reuben R.
Cc: neal skavarka; Rusek, Richard D.; Poston, Charles
Subject: Compromises

1. What brought about the problems/actions which are arising
1. What brought about the problems/actions which are arising: The constant screaming at me and fellow workers, no plan of action, verbal policies changing daily, no sop's in writing established, being treated like a personal clerk, discovering we were doing the leader leaders job description, no management personnel listening, working in unsafe areas without proper training or safety programs in place. OT practices not being fair, job threats, being told you can come to work sick, comments made about women and being told that I get everyone else to do my job. Schedules being changed a couple of days in advance when it had been posted months ahead. Checking OSHA regs, Military regs, and Union regs.

2. How far are you willing to go to see results: Court.

3. What action are you seeking: That the Job Description is rewritten with all the information correct that a UMCS operator does. An upgrade to the position. The leaders job description made perfectly clear to him. A written reprimand placed in Mr. Pavliscsak's file concerning his treatment of personnel under him. The power plant to be a safer place to work, obtain the training that is needed and mandatory safety classes started. Two separate job positions due to the growth and additional responsibilities.

4. What would you consider to be a fair compromise: Upgrade to a WG12 with the right PD. Everyone working 3 shifts instead of two or two separate grades. What the UMCS group decides together.

P22

Fullbright, Reuben R.
From: Rusek, Richard D.
Sent: Friday, September 24, 1999 12:11 AM
To: Fullbright, Reuben R.
Cc: Combs, Dorsey D.; Ellis, William E. Jr; Griffin, Gordon D.; Poston, Charles F.; Reed, Brenda L.; Skvarca, Neal M.
Subject: RE: information

-----Original Message-----
From: Fullbright, Reuben R.
Sent: Thursday, September 23, 1999 4:12 AM
To: Reed, Brenda L.; Poston, Charles F.; Combs, Dorsey D.; Griffin, Gordon D.; Skvarca, Neal M.; Fullbright, Reuben R.; Rusek, Richard D.; Ellis, William E. Jr
Subject: information

As some of you know, there may be a meeting in the near future. In order to make sure the facts are right, I need input from everybody on the following questions. In your opinion:

1. What brought about the problems/actions which are arising
   a. Performing on a continuing basis duties not indicated in our position description.
   b. Failure of management to address safety issues.
   c. Failure of management to address training issues.
   d. Failure of higher level management (Curt & higher) to address issues dealing with inappropriate behavior of the group leader (yelling, threatening, failure to follow appropriate procedures for shift change, etc.)

2. How far are you willing to go to see results
   a. Whatever it takes. I personally think a good labor lawyer is needed.

3. What action are you seeking
   a. Safety is foremost
   b. Suitable job description. If the pd is accepted as drafted, it SHOULD be a GS-11. If tasks we have been forced to perform are not included in the new pd, we need a clear definition of what OTHER DUTIES AS ASSIGNED means.
   c. Back pay AT LEAST for shift responsibility (WG-12) dating back from when UMCS operators were tasked with duties at the Fire Department and as DPW staff duty officer.
   c. Formal (that means actual classroom and hands-on) training, especially on the power plant. If we are also being tasked with the thermal (heating/cooling) plants, then formal training is needed there.
   d. Management's guarantee that we will not be harassed and that guidelines will be followed (shift changes, hours of operation, job responsibility...etc.)

4. What would you consider to be a fair compromise
   a. Safety
   b. Revised PD reflecting grade of WG-12 or WG-13 (I think we can substantiate WG-13 with some work <WG-12 Electronic Industrial Controls Mech PLUS one grade for shift responsibility>, with WG-12 backdated as indicated above.
   c. At least one-grade promotion to be guaranteed for all in section.

c. Guarantees against harassment by group leader.

Please answer and reply to me ASAP Reuben
PS This information will be consolidated so no one except us will know where each answer came from.

SCOPE

ECSM-02: EMERGENCY GENERATOR CBL

ATTACHMENT R
SCOPE OF WORK

Use or disclosure of information on this page is subject to the restriction of the title page of this RFP.

FT. GORDON
PROJECT SCOPE
03-14-01

A) Generator Plant
1) Perform the following upgrades to Plant
a) Perform the following work on all 9 engines:
(i) Remove coolant; flush and replace with new coolant.
(ii) Inspect turbos.
(iii) Clean, inspect main bearing, and megger test generators.
(iv) Test lube oil, replace if determined to be necessary by lab results (lube oil to be supplied by ERI Services). Replace all other fluids and filters.
(v) Repair exhaust leaks.
(vi) Rebuild unreliable starters. If starters are beyond repair, the base will be responsible for providing rebuildable replacements.
(vii) Replace fuel racks with spring-loaded type.
(viii) Replace top seals.
(ix) Install spin on fuel filter plates and filters.
(x) Test all safeties.
(xi) Perform operational tests.
b) Perform the following upgrades on engines in sets 1 & 2:
(i) Replace radiators with heavy-duty model.
(ii) Replace old vibration dampers.
c) Perform center section overhauls on engines 2-1,2,3, & 1-1,3 to include:
(i) Replace all parts exhibiting unacceptable wear upon disassembly and inspection.
(ii) Replace turbo on engine 2-2. Rebuilt turbo to be supplied by the Base.
d) Inspect 4 engine generator sets to include:
(i) Perform annual inspection.
(ii) Replace any parts that exhibit severe wear or render engine unreliable.
e) Provide critical spare parts.
f) Install storage trailer on site.
g) Provide special tools and equipment.
h) Install bulk lube oil storage and delivery system.
i) Install one, 5 ton AC unit for #3 control van.
j) Install new compressed air system for lube oil pump and pneumatic tools.
k) Install new shore power backup transformer.
l) Install new cooling fans on 3 power transformers.
m) Install new site lighting.
n) Control cubicles:
(i) Perform PM on all controls, Agastats, relays, connections, and breakers. Visually inspect all components and clean all open relay contacts.
(ii) Replace all batteries and install new batteries in 3 new exterior battery cabinets.
(iii) Base has plans to install new kWh metering for each generator.

(iv) Install and program controls to control engine loading and communicate with the Dorsett system. The system shall monitor base load by interfacing with instrumentation in the center control cubicle and the Dorsett system. Operator interface shall be provided to monitor engine output and input base load profiles. Base load profile to be attained by controlling the output of the generators. Base peak load to be capped at approximately 17.5 MW.

o) Move 4 kV to 12 kV transformer to new pad in generator plant area for emergency use. In the event of a failure by one of the existing transformers, the base will have this be connected to the appropriate points by the JCWS HV crew.

p) Install two 15,000 gallon tanks of additional fuel storage adjacent to existing fuel storage.
   (i) Install concrete pad to place new tanks on.
   (ii) Tanks to be steel with integral containment.
   (iii) Install fill station and piping.
   (iv) Make connection to existing fuel delivery system.
   (v) Install new fuel delivery system connected to each generator and utilize existing internal fuel pumps. Provide tie to connect existing fuel tanks upon commissioning of new fuel delivery piping.
   (vi) Install expansion tank to prevent fuel pipe leaking.
   (vii) Extend day tank overflow vent piping up approx. 3 feet.
   (viii) Provide power to overflow tank pump controls.

2) Base Substation
   a) Connect long and short busses with manual knife switch in line.
   b) Remove voltage regulators from circuits and leave on site at location designated by Fort Gordon.
   c) Leave both puffers connected (only one will be used at any given time and the second will remain connected for backup).
   d) Replace power wiring on both sides of long bus puffer to 2,000 amp rating.
   e) Modify the Reverse Power Relay so that if either RPR senses a reverse power condition, both breakers connecting the emergency bus to the new combined bus and the puffers shall trip.

3) Dorsett System
   a) Complete CHWS control, if any work remains from current project. Prove system operation.
   b) Complete chiller plant controls, if any work remains from current project.
   c) Complete interface with engine controls to deliver current Fort Gordon electric load and generator output requirement information.
   d) Install new radios and repeater at UMCS control center. Provide one handset to the Fort Gordon technical advisor.

4) Hospital
   a) Inspect engine generator set to include:
      (i) Perform annual inspection.
      (ii) Inform the Base of any parts exhibiting severe wear or rendering the engine unreliable and in need of urgent repair.
      (iii) Inspect turbos.
      (iv) Test all fluids.

(v) Perform operational tests.
(vi) Test all safeties.

b) Install controller, DSLC, VAR controller, new main breaker, reverse power relays, and other controls necessary to control engine synchronization, parallel operation, and load control on 2.1 MW. Monitor hospital load by interfacing with Dorsett instrumentation. Control from the operator station located at the UMCS center. Hospital load profile to be attained by controlling the output of the generator. Peak load to be capped at approximately 3.15 MW.
c) Install new fill station and piping for existing fuel storage tanks.
d) Provide 1.6 MW standby rental generator for 2001 Summer season to back up the existing 2.1 MW generator and operate at low load conditions.

5) Hospital Substation
   a) Add reverse power relay to the feed from utility to substation. This relay shall trip the new generator breaker.
   b) In the case of a GP failure, the new breaker will open and the hospital emergency power operational procedures will remain unchanged.
6) RF System
   a) Test RF transmitter.
   b) Test approx. 900 RF receivers.
   c) Repair disconnected wires.
   d) Replace estimated 320 failed receivers.
   e) Properly address new digital receivers.
7) Operations Manual
   a) Prepare Operations Manual and Submit for Review and Approval by Fort Gordon.

ERI SERVICES RESPONSIBILITIES

B) UMCS OPERATIONS

1) Respond to phone calls from Base personnel requiring UMCS intervention.
2) Operate and monitor the UMCS main control room facility controlling utilities systems throughout the installation using the UMCS and FM radio Load Management Controllers (LMC).
3) Identify problems in connected systems and inform the COR and the BOSS contractor of any evident problems that require their attention.
4) Identify problems in the Dorsett system and coordinate any repairs necessary with the ERI Services UMCS repair staff.
5) Adjust set points and schedules, change, add, adjust and install control blocks and displays as required.
6) Operate the load-shed controls, as necessary. Install new LS equipment as necessary. Base to supply new equipment.
7) Recommend, and assist the energy section on, creating standards, requirements, specifications, cost needs for projects involving installation, modification, replacement, or overhaul of various automatic or semi-automatic controls utilized, serviced, operated, and/or maintained by the UMCS.
8) Serve as point of contact (POC) for the Directorate of Public Works (DPW) during load-shed operations and emergency utility outages.
9) Provide UMCS operations services as required for natural gas curtailments.
10) Monitor fuel oil storage tanks and direct Fort Gordon to order fuel as required. Assist fuel supplier with deliveries of generator fuel.
11) Monitor bulk lube oil storage tank, order lube oil as required and bill Ft. Gordon for delivered oil. Assist oil supplier with deliveries of generator lube oil.
12) Receive heating fuel oil deliveries in approximately 13 small tanks on the base.
13) Maintain Operations Manual and Update Periodically in Consultation with Fort Gordon

C) UMCS MAINTENANCE AND REPAIR SERVICES

1) Perform UMCS control maintenance, troubleshooting, repair, overhaul, modification, testing, calibration, and installation of the various mechanical, electrical, electronic, and pneumatic instruments and equipment that make up the existing UMCS.
   a) Any new work will result in additional charges to the Base, price to be quoted in advance.
   b) Minor new work is included in this scope. This is defined as a task that requires a total of less than 2 hours of field and or programming work. An allowance of one such task per week is included in this scope. This allowance is not cumulative beyond a four-week period. Any new equipment required for this shall be supplied by or billed to the base.
2) Annually calibrate each sensor connected to the UMCS system. The Base will be notified by email of any local controls sensor that is out of tolerance and in need of replacement and generate an appropriate work order for action by BOSS contractor.

P6

a) A complete list shall be developed and agreed to by the Base, prior to May 1, 2001, delineating the line of responsibility for local controls between ERIS and others, for each building on the base.
b) Minor repairs of end devise connections, such as tightening a wire connection, shall be included in this scope.

3) Annually calibrate the positioning controls for dampers, valve actuators, etc. The Base will be notified by email of any local controls actuator that is out of tolerance and in need of replacement and generate an appropriate work order for action by BOSS contractor.
4) Provide repair or replacement of any Dorsett component as needed, except for those regarded as "local controls". Costs resulting from a failure deemed the result of a Force Majeure or an act of others not under the control of ERI Services will result in additional charges to the Government.
5) Provide technical review of drawings for any new UMCS work being proposed on Base.
6) Identify underground UMCS cables for base or other contractors prior to their beginning any excavation.
7) Provide repair services for any UMCS communications cable that has been damaged by new work. Base shall be charged for this service unless the cable was damaged as a result of ERIS staff incorrectly locating it prior to the new work.
8) Annually test up to 900 RF receivers and the transmitter.
9) Reconnect any disconnected receivers. In the event that more than 8 receivers are disconnected in one area, the Fort Gordon inspector and COR will be notified of the situation. If repairs are authorized by the COR, the base will be billed for any additional work required as a result of work performed by other contractors.
10) Labor for the replacement of FM receivers is included. Base shall supply or be billed for any equipment necessary.
11) Provide ongoing software training for UMCS personnel, as necessary. Base technical advisor shall be invited to attend. Others may be invited as necessary. Training and other new costs resulting from new work by others are to be covered by others.
12) Provide annual Dorsett system software updates as they become available. Necessary patches or fixes shall be installed ASAP.
13) When multiple failures exist at the same time, ERI shall initiate repair efforts in the following order of priority:
    a) Server and master control room equipment.
    b) Communication lines.
    c) Field interface devices.
    d) Multiplexes.
    e) Controllers.
    f) Control components.
    g) Monitoring components.
14) The Dorsett's maintenance tasks, as defined in the current Dorsett's maintenance contract with the base, are hereby incorporated in this Scope of Work.

D) UMCS EXCLUSIONS

1) The following is a list of some of the items that are regarded as existing deficiencies in the UMCS system. An existing deficiency is defined as any problem in the Dorsett

system that existed prior to and is identified prior to June 1, 2001. Service calls, repairs, and replacements for any such items will result in additional charges to the Base. This includes, but is not limited to, the following:

a) Repair or replace any Dorsett, or other covered, component that has failed, been disconnected or blocked off, or is out of tolerance prior to May 1, 2001.
b) Repair or replace existing failed or failing communications lines.

2) Any new work, such as additions to the system, replacement of Dorsett's components that must be replaced due to obsolescence, is not included in the scope of this contract and will be priced separately. Any new additions to the system, regardless of who performs the work, will require a modification to the annual UMCS O&M contract, and result in an increase in annual system maintenance costs.

3) Costs associated with the upgrade or repair to the servers, workstations and other non-Dorsett equipment and the required upgrades for non-Dorsett software, including, but not limited to, Oracle, virus protection, and Windows NT, shall be provided by the Base. ERIS staff will install upgrades. The Base will either supply or be billed for any such equipment or software.

E) GENERATOR PLANT OPERATIONS AND MAINTENANCE

1) Operate three 4.5 MW generator plants as necessary for:
   a) Load-shedding for IS operations including instructions to BOSS contractor. ERI will maintain a list of equipment for which the BOSS contactor shall be responsible for IS operations.
   b) RTP operations. Load shed levels shall be coordinated with the base.
   c) Standalone emergency power when required. The base will provide ERIS with contact information for any other organizations with which emergency operations must be coordinated.

2) If GP fails while the generators are in parallel with the utility:

   a) The tie breaker will open.
   b) Plant staff will provide emergency power to the Emergency Bus and coordinate other emergency operations with the BOSS HV crew.

3) Perform regular maintenance on generator sets, including:

   a) Change filters as required.
   b) Add lube oil as required.
   c) Rebuild, repair, rebuild or replace pumps, motors, starters, injectors, valves, and controls as required.
   d) Perform minor repairs on engines costing less than $10,000 in its aggregate per repair.

P8

4) Perform regular maintenance and repairs on Plant control systems.

5) Perform Engine Annual Inspection per EMD M.I. 1722, including:

a) Lube oil circulating pump and motor:
   (i) Inspect and clean. Repair or replace as necessary.
   (ii) Remove and clean check valve. Repair or replace as necessary.

b) Electrical control cabinet:
   (i) Check operation of protective devices. Repair or replace as necessary.
   (ii) Calibrate KWH metering equipment.
   (iii) Visually inspect and clean Basler SSE exciter and voltage regulator.
   (iv) Remove circuit breakers from compartments and clean insulators, lubricate linkage bearings, and check operation.

c) Cooling system:
   (i) Check operation and setting of engine water temperature controls.
   (ii) Check torque on flexible pipe coupling bolts.
   (iii) Take cooling water sample for lab analysis and corrosion test.

d) Lube Oil System
   (i) Change oil filter elements.
   (ii) Change turbo filter element.
   (iii) Clean lube oil strainer.
   (iv) Take lube oil sample for lab analysis.

e) Engine
   (i) Inspect cylinders, piston, and rings. Reseal or replace as necessary.
   (ii) Take lead readings and document on EMD form.

f) Operational Test
   (i) Start generator set and place on line at near full-load.
   (ii) Take temperatures, pressures, and load readings.

g) Perform PM on generators:
   (i) Clean windings.
   (ii) Lube bearing.
   (iii) Megger test windings.

h) Perform PM on fuel storage tanks:
   (i) Spot sand and paint rusting spots.
   (ii) Inspect fuel level sensors. Repair or replace as necessary.
   (iii) Inspect fuel lines for leaks. Repair or replace as necessary.

POWER PLANT EXCLUSIONS

P9

1) Costs resulting from any replacement or repair procedure, which in its aggregate, costs more than $10,000 to complete, (adjusted for 2.8% inflation per year) are not included in the scope of this contract and will result in additional charges to the Base. The phrase "in its aggregate" as used herein, means the total of all costs resulting from a particular repair procedure, such as a partial or major overhaul. For the purposes of this section, any such repair or procedure shall be regarded as a single repair. Some examples of such items are:
   a) Cracked cylinder head or liner.
   b) Cracked block.
   c) Turbo failure.
   d) Rear gear train failure.
   e) Front gear train failure.
   f) Main bearing failure.
   g) Oil cooler failure.
   h) Rod, crankshaft or camshaft failure.
   i) Leaks which result in lube oil contamination while engine is operating.
   j) Generator bearing, shaft or winding failure.

2) All costs associated with repair or replacement of the following items are not included in the scope of this contract, except as noted above:

   a) The generator portion of the generator sets.
   b) The silencer portion of the generator sets.
   c) The cabinet portion of the generator sets and control vans.
   d) Power transmission equipment, such as transformers, breakers, and transmission lines.
   e) Any parts that become unavailable from regular "off the shelf" commercial sources.
   f) Operations, maintenance, and repair of all equipment in the substation.

3) The Base plans to replace the 9 generator breakers. However, if this is not completed, any cost or liability resulting from the lack of proper operation of the existing breakers shall be the responsibility of the Base.

4) The Base shall be responsible for the ordering and timely delivery of fuel oil upon notification from ERI Services of a need. Liabilities resulting from a fuel oil shortage shall be the responsibility of the Base. ERIS staff shall give the base a minimum of 48 hours notice of the need for a 7500 gallon fuel delivery.

5) ERIS shall be responsible for the ordering and timely delivery of lube oil. ERIS shall pay for the lubrication oil and then bill Fort Gordon for the lube oil costs.

6) The Base shall be responsible for the performance of, and costs associated with, Hazmat spill cleanup, currently under the BOSS contract.

   a) In the case of a hazmat spill, which occurs as a result of negligent actions on the part of ERIS staff, ERIS shall be responsible for the costs incurred.

G) HOURS OF ON-BASE COVERAGE

1) Coverage by a minimum of one fully qualified staff member shall be provided on Base at the UMCS in Building 14600 by ERI Services on weekdays between the hours of 6:00 a.m. and 10:00 p.m. and on weekends and holidays between the hours of 8:00 a.m. and 4:00 p.m.

2) Manpower Coverage

3) Operations – Test Year

4) Project Management
   a) 1 Man, 1 Shift, Weekdays — 35 Weeks (May – December)

   b) UMCS Operations
      (i) 3 Men, 2 Shifts, Weekdays — 35 Weeks (May – December)

   c) Dorsett Maintenance and Repair
      (i) 2 Men, 1 shift, Weekdays

   d) Generator Plant
      (i) 4 Men, 2 Shifts, Weekdays — 22 Weeks (May – September)
      (ii) 1 Man, 1 Shift, Weekdays — 13 Weeks (October – December)

   e) Hospital Plant
      (i) Johnson Controls will operate with their current staff
      (ii) ERI Services Monitoring, 1 Man, 1 Shift, Weekdays — 22 Weeks (May – September)

   f) Overtime – UMCS
      (i) 1 Man, 1 Shift, Weekend Days and Holidays — 35 Weeks (May – December)

   g) Overtime – General
      (i) 16 Man Hours — 35 Weeks (May – December)

   h) Night and Weekend Coverage
      (i) UMCS Emergency Call
      (ii) Atlanta Response Center

5) Operations – Contract Term

   a) Project Management
      (i) 1 Man, 1 Shift, Weekdays — 52 Weeks (January – December)

   b) UMCS Operations

(i)	3 Men, 2 Shifts Weekdays	52 Weeks (January – December)

c) Dorsett Maintenance and Repair

(i)	2 Men, 1 Shift, Weekdays	

d) Generator Plant

(i)	1 Man, 1 Shift, Weekdays	52 Weeks (January – December)

e) Hospital Plant

(i)	Coverage by Johnson Controls	

f) Overtime – UMCS

(i)	1 Man, 1 Shift, Weekend Days	52 Weeks (January – December)
(ii)	1 Man, 1 Shift, Holidays	(11)
(iii)	16 Hours/Week	17 Weeks
(iv)	4 Hours/Week	35 Weeks

g) Night and Weekend Coverage

(i)	UMCS Emergency Call
(ii)	Atlanta Response Center

H) HOURS OF REMOTE UMCS COVERAGE

1) ERI Services' Remote Control Center (RCC) is staffed 24 hours per day, 365 days per year. The staff is available to provide coverage by remote control at all times when the UMCS office is not staffed. The UMCS office number will be forwarded to the RCC when no on-site staff is available to answer phone calls. The RCC will provide monitoring and necessary adjustments where possible.

2) In the event of an emergency that cannot be resolved by the RCC:

   a) The staff member shall respond by telephone within 30 minutes of a call being placed and be available on Base within one hour from receipt of the call.

   b) The RCC will contact ERI Services' local on-call staff member, who will respond by visiting the site. Six such emergency site visits per calendar year are included in this scope. Any additional required visits shall result in additional charges to the Government. This allowance shall not be cumulative.

   c) In the event that the ERI Services RCC cannot be reached, ERI Services' toll-free National Emergency Maintenance Number, 877-270 –6600, should be called. The operator will ask for the name of the caller, site name and location, nature of the issue, and a call back number. A local staff member will be located, who will respond to the call within 30 minutes.

P12

PROCEDURES FOR FORCE MAJEURE EVENTS

1) In the event of any occurrence falling in this category, ERIS shall immediately contact the base inspector and COR to coordinate resolution.

2) Force Majeure events could occur during the course of this Contract and, despite our best efforts, could result in a suspension of services by ERI Services to Fort Gordon. The goal of ERI Services in all cases is to return the UMCS and Emergency Generator Plant operations back to normal as soon as possible. Repair costs resulting from an event that falls under this category may result in additional charges to the Government. Other associated losses or liabilities resulting from an event falling under this category will be the responsibility of the Government.

3) Some of the events identified in the contract include the following:

   a) Acts of God or of the public enemy
   b) Acts of Government in either its sovereign or contractual capacity
   c) Fires
   d) Floods
   e) Epidemics
   f) Quarantine restrictions
   g) Strikes
   h) Freight embargoes
   i) Lightning strikes
   j) Unusual severe weather

4) If all problems cannot be remedied immediately, ERI Services will notify Fort Gordon DPW of the event. This shall be done through contacting, by any means possible (telephone, email, facsimile transmission, written communication, in person), at the earliest time possible after the event occurs, the designated Fort Gordon Point of Contact or their alternate.

5) For unresolved problems, ERI Services shall determine the nature and extent of the problem and determine what areas have been impacted and to what degree. At that point, in consultation with the Fort Gordon DPW, an action plan for the restoration of full services will be developed and implemented by ERI Services.

6) Resetting components, replacing fuses and other protective devices do not fall in this category.

7) In the event of an event, which results in widespread UMCS or significant Power Plant failures, all ERIS staff will respond to return operations to normal.

SCOPE CHANGES

Comments on Neresco/ERI Draft dated 7 Febuary 2002

During construction there were variations in the actual work performed due to variations in site conditions and equipment availability.

The contractor failed to follow contracted procedures in Section C XXX for changes. The contractor was so secretive about his actions that the Government staff suspected deviations. At that point the contractor was warned that proper procedures must be followed if he deviated from the scope. The Government emphasized that there was not and would not be any verbal changes in the contract. At one point contractor personnel stated "don't worry about it, It's our money and we will spend it as we see fit" The Government staff continued to caution the contractor that he must follow the contract and was shown the contract paragraphs for the proper procedures. The contractor denied deviating from the contract but continued to be secretive about his actions.

- Repair Exhaust Leaks (A)(1)(a)(v) The scope of work called for fixing exhaust leaks on four engines. During the course of work, seven exhaust leaks were discovered and repaired on a total of five engines (# 63488, 1-1 (1); # 63511, 1-2 (2); # 63430, 2-2 (1); # 63425, 3-1 (1); and, # 63417, 3-3 (2)).

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds for any additional exhaust leak repairs. At this point I can not document the contractors claim. I need to document the number of repairs planned, how repairs were made, and cost. All supporting and cost documentation should be submitted.

- Engine Radiator Replacement (A)(1)(b)(i) The scope of work called for replacing the radiators on the six older engines since these units had frequently overheated under high load and weather conditions and had been unable to maintain full generator output under those conditions. As part of the field evaluation, the radiators were cleaned and inspected. Based upon the inspection, it appeared that the radiator integrity and heat rejection would be sufficient for meeting operational requirements. Since the availability of all engines was critical for plant operations during the summer, NORESCO elected not to proceed with replacement during the summer months. The radiators were thoroughly cleaned and flushed and the water replaced with new water and inhibitors in order to maintain peak heat transfer.

During the summer, the engines did not show any signs of overheating and the radiators performed properly, even under continuous full load at ambient temperatures close to 100° F., with no signs of leaks. It does not appear that these need replacement at this time.

Agreed, the Government staff originally did not think the radiators needed replacing but the contractor said that their inspection and evaluation showed replacement was necessary. This should be a credit on the contract that is returned to the Government.

- Overhauls (A)(1)(c)(i) The scope of work called for overhauls of five of the diesel generators. As a result of the inspection of the diesel generators, it was determined that the sixth (#63511, 1-2), 'older', unit would require an overhaul as well since 7 of the cylinders already displayed scuffing. As a result, all six of the 'older' units were overhauled.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. I need to document why a complete overhaul was needed and why the initial inspection did not indicate an overhaul was needed. All supporting and cost documentation should be submitted.

- Cam Shaft Replacement (A)(1)(c)(i) During the overhauls of two units (#63421, 2-3; and #63442, 2-1), the camshafts had to be replaced. The unsatisfactory cams were not found at the time of inspection due to the position of the camshafts and the rocker arm assemblies in place.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. I need to document why the camshafts needed replacement. The initial inspection did not indicate bearing or lobe wear which should easily be note on an engine inspection. All supporting and cost documentation should be submitted.

- Lube Oil Cooler Replacement (A)(1)(c)(i) Subsequent to the center section engine overhauls, two units (#63430, 2-2; and #63502, 1-3) experienced high lube oil temperatures during test runs. The water inlet piping to the lube oil coolers was removed and the coolers were found to have tubes plugged with scale deposits. Replacement of the lube oil coolers was necessary.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity

for Government inspection, or request contingence funds. I can not document the contractors claim. High lube oil temperatures should have been noted on the initial inspections and documented on previous log readings. All supporting and cost documentation should be submitted.

- Head Frame Gaskets (A)(1)(c)(i) During the engine retorques of three units (#63421, 2-3; #63430, 2-2; and # 63442, 2-1) it was discovered that multiple head frame fasteners would not accept the EMD recommended torque. After further investigation it was found that the head frame gaskets were broken and falling out on the exhaust manifold side. This was not found at the time of inspection due to the build-up of debris and baked oil between the exhaust manifold and the head frames, which ESI removed to perform the engine retorque.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. Why did a complete overhaul not include this item? All justifications, supporting and cost documentation should be submitted.

- Replace Agastats (A)(1)(c)(I) During construction, it was determined that none of the agastats required replacement.

Agreed, this should be a credit on the contract that is returned to the Government.

- Replace Fuel Oil Pumps (A)(1)(c)(I) During construction it was determined that none of the fuel oil pumps required replacement. However, one generator was missing a pump. A pump was purchased for and installed on this unit.

Agreed that no pumps needed replacement, the contractors initial inspection and evaluation should easily have found a missing pump if required. The pump was not needed for the fuel-piping configuration and we now have XX excess pumps on hand. The contractor should why the pump replacement was necessary. This should be a credit on the contract that is returned to the Government.

- Replace Lube Oil Pressure Pumps (A)(1)(c)(i) The original budget provided for exchanging (replacing) three lube oil pumps. During the gear damper replacements on six units (#63502, 1-3; #63511, 1-2; #63488, 1-1; #63421, 2-3; #63430, 2-2; and # 63442, 2-1), ESI removed the lube oil pressure and scavenging pumps. Visual inspection indicated that the pumps were due for a rebuild. The actual date of the most recent rebuild could not be verified from available maintenance records or documentation. Due to the critical nature of the system operation, NORESCO

directed ESI to replace all of the lube oil pressure and scavenging pumps rather than take a chance upon failure.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. The contractor needs to produce documentation why 3 were originally scheduled for replacement, wear measurement and all justifications, supporting and cost documentation.

- Core Charges (A)(1)(c)(ii) The cost of the replacement parts from ESI included credits for returning parts to the manufacturer (EMD) so that they could be remanufactured. The credit assumed that the part was either an original EMD part, or an EMD part that had already been remanufactured by EMD. A number of the components returned to the factory for credit from the engines were either not EMD parts, or EMD parts that had been remanufactured by a party other than EMD. Therefore, rather than receiving a credit for these pieces, a charge was received from ESI.

The contractor did not produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. If another company rebuilt parts why weren't replacements procured from that company? All justifications, supporting and cost documentation should be submitted.

Miscellaneous Small Items - Mechanical The 11 items following are grouped together in the financial summary.

On none of these items did the contractor produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. A detailed break down with all supporting and cost documentation should be submitted.

- Zinc Plate Fasteners (A)(1)(d)(ii) During the engine repairs zinc plated fasteners were discovered installed internally in three units (#63425, 3-1; #63483, 3-2; #63417, 3-3). The zinc fasteners were removed and replaced with approved EMD fasteners, as discovered, while repairs were made to the engines. The presence of these fasteners had contaminated the lube oil, which therefore had to be replaced.

- Fan Shaft Bearing (A)(1)(c)(i) (A)(1)(d)(ii) Upon completion of the base scope of work in two units (#63483, 3-2; and #63488, 1-1), during operation the Power Take Off (PTO) fan shaft bearing was making noise or failed and required replacement. The bearing were replaced and the units placed back in service.

- Crankcase Pressure (A)(1)(d)(ii) During start-up it was noticed that one unit (#63483, 3-2) had 3/10" of crankcase pressure – far below required standards. After examination, it was determined that the turbo eductor tube was improperly installed. A new eductor line was run to the airbox drain, the lube oil separator was cleaned, the crankcase was smoked, and exhaust backpressure checked. After completion of work, the engine ran with 7/10" vacuum. The crankcase pressure problem was not discovered during the initial inspection as the engines were not run, and the units are not equipped with manometers.

Why was the engine not run? A portable manometer would be a standard item used during an inspection. All that is required is a piece of clear flexible tubing and a little water. In fact a portable manometer was on hand. and available for the contractor if needed.

- Water Pump Seal (A)(1)(d)(ii) During an initial test run of one unit (#63483, 3-2) it was found that the right bank water pump had a bad water seal. The pump was repaired with a new seal. The unsatisfactory seal was not found at the time of inspection as the unit was not operated.

The contractor was informed of the pump seal problem when he came on site.

- Turbo Oil Line (A)(1)(c)(i) During the repairs to one unit (#63421, 2-3), the turbo oil supply hose was noted to be in poor condition. The hose assembly was replaced. The hose was not noted at the time of engine inspection due to the routing of the hose assembly behind the aftercooler.

- Piston Cooling Pipe (A)(1)(d)(ii) The Piston Cooling Pipe bolt hole threads (bolted to the piston cooling oil line) on one unit (#63425, 3-1) were stripped. This was repaired by redrilling and installing a Gard Sert to receive a bolt during engine reassembly.

- Pressure Detector Hose (A)(1)(c)(i) The water hose to the crankcase pressure detector on one unit (#63511, 1-2) was leaking. The engine water was drained, the hose replaced, and the jacket water refilled.

- Layshaft (A)(1)(b)(ii) The bearing in the layshaft support brackets on one unit (#63442, 2-1) were in poor condition. This damage was discovered when the vibration damper was replaced on the unit.

- Linkage (A)(1)(b)(ii) The governor linkage bearing on one unit (#63502, 1-3) had to be replaced. This problem was discovered when the vibration damper was replaced on the unit.

- Pre-Lube System (A)(1)(d)(ii) The piping on the pre-lube system on one unit (#63425, 3-1) was cracking at the joints. The system was re-plumbed replacing the soldered copper piping with the proper threaded black iron pipe and fittings.

- Hose (A)(1)(c)(i) A leaking fuel transfer hose was replaced on one unit (#63420, 2-2).

Miscellaneous Small Items - Electrical **The 4 items following are grouped** together in the financial summary.

On none of these items did the contractor produce any documentation or meet with the Government staff to inform, give an opportunity for Government inspection, or request contingence funds. I can not document the contractors claim. A detailed break down with all supporting and cost documentation should be submitted.

- Switch Gear Troubleshooting (A)(1)(c)(i) Trouble shooting the cause for blown PT fuses in Van #3.

- Starter Solenoid (A)(1)(c)(i) During removal of starter one unit (#63488, 1-1), ESI found a damaged solenoid stud. The solenoid was disassembled and the stud was repaired.

- Starting Problem off Line (A)(1)(c)(i) Could not start one unit (#63488, 1-1), ESI traced problem to loose connection in Van #1.

- Units Tripping off Line (A)(1)(c)(i) During operation, units would intermittently trip off line. ESI investigated and determined that the negative lead on the 24-volt DC control circuit was the problem.

Caused by under sized batteries installed by the contractor.

- Tie Breakers (A)(1)(c)(i) ESI Assisted in changing the tie breakers on Vans #1 and #2.

Cost?

- Control Van Air Conditioning (A)(1)(i) The Task Order called for the installation of one, 5-ton air conditioning unit in Control Van #3. The size was based upon information provided by Fort Gordon that the existing air conditioning units (Control

Vans #1 and #2) were 5-tons in size, and adequate to the load. It became evident that existing units were inadequate and were not capable of maintaining an acceptable temperature for the reliable operation of the controls systems. A new 7.5-ton unit was installed on Van #3. After further investigation, it was determined that the existing units were, in fact, 3-ton units. Therefore, a new 5-ton unit was installed in Van #2, and the old 3-ton unit was moved from Van #2 to Van #1 and operates in conjunction with the 3-ton unit already in Van #1.

The contractor was told that existing units were three tons and that operators complained that when going in and out in hot weather it wasn't big enough and therefore to install a five ton unit in the new van. I was told by contractor personnel that they mistakenly thought the units were 5 tons and purchased an oversized unit. If the contractor had followed contact procedures the mistake would not have occurred.

- Air Compressor Piping (A)(1)(j) The original scope called for an air compressor system that utilized an air compressor and a hose reel system for distributing compressed air to the engines and for pneumatic tool use. During construction, NORESCO determined that the use of a reel hose system wouldn't work based upon the final location of the air compressor at the end of the site. As a result, a hard-piped system was installed resulting in increased costs.

This was unnecessary.

- Secondary Shore Transformer (A)(1)(k) The scope of work called for a second shore power transformer that would be a backup to the existing 13.8kVA/208 volt transformer. The purpose was to ensure that auxiliary power would be available for generator controls, battery chargers, and pumps if the shore transformer should fail. In order to meet the tight time frame, it was originally agreed that Fort Gordon would provide a transformer. Johnson Controls agreed to have a transformer 'tagged' in the yard, but not installed. However, this did not occur.

  It was also determined that the original design concept would not work since it would have required a new electric service, and a new telephone pole, from a point 200 feet away plus double-throw safety switch capabilities.

  During further site investigation it was determined that each control van did, in fact, have its own shore power transformer installed. NORESCO installed a transfer switch in each van that could be used to provide isolation from installation shore power and use van shore power in the event of a shore power transformer failure. This corresponds to the normal field deployment configuration of these units.

This is wrong. After the contractor did this work they tried to convince me with drawings and arguments that what we asked for wouldn't have worked. They at first refused to listen to me and finally went to one of the original

Government operators who told them the same thing that I was telling them. In my opinion it was a cheaper way out for them and they felt they could convince me that their way was better. It is not. I wouldn't allow any cost for this and demand full credit for the work they didn't do.

- Area Lighting (A)(1)(m) The lighting systems for the area included two new metal haldide fixtures for Van #3 and one each for Van #1 and Van #2. During construction it was determined that the existing Low Pressure Sodium fixtures on Vans #1 and #2 had blown lamps that cost more to replace than a new fixture would costSince metal halide fixtures (which produce a 'white' light) were being installed, NORESCO removed the existing fixtures and replaced with two, new 400 Watt fixtures on each van. A total of 6 lighting fixtures were installed. This change produced a uniform visual environment which is better for a 'working' exterior environment than the LPS fixtures that are better suited for a low light level 'security' exterior environment.

- Transformer Connection Insulation (A)(1)(n) During operation, the fuses in Control Van #3 would frequently blow during operation. NORESCO employees verified that the van had not operated successfully during the summer of 2000. NORESCO engaged ESI and High Voltage Specialists to determine the source of the problem. High Voltage Specialists determined that the connections on the 4160/208 volt transformer had been improperly insulated such that a conductive material covered with standard electrician's tape had been installed - thus reducing the air gap between the terminals. Under high humidity and load conditions, the power would arc between the connections, thus shorting out the 4160 VAC source and blowing the fuses. After looking at the situation in Control Van #3, High Voltage Specialists also inspected the transformer connections in the other two vans. A similar, although less serious fault, situation existed with the other vans.

  High Voltage Specialists removed the existing insulation, cleaned the connection points, reinstalled the wiring, and wrapped the connections in the proper insulating material in all three vans.

- Control Power Supply (A)(1)(n)(i) During operations, the current draw on the batteries caused a voltage sag and then a voltage surge (after the engine fired) on the 24-volt, DSLC, control circuit wiring. This voltage fluctuation caused fuses to blow, and render the control systems inoperable. After extensive trouble shooting by NORESCO and ESI, it was determined that there was a design oversight during the installation of the DSLC system by Hill AFB. As a remedy, two 12-volt batteries were installed, in series, to provide a separate power source for the 24-volt control circuit wiring. EMD, the engine manufacturer, has stated that a separate power source for the control power system should be supplied.

  The controls technicians from Hill Air Force Base agreed that this was a necessary alteration.

- Battery Replacement/Enclosures (A)(1)(n)(ii) The scope of work called for replacing the batteries and providing an external battery storage cabinet adjacent to each control van. During construction it was determined that the regular replacement batteries would not be available for delivery prior to the June start date and that the battery enclosure system could not be installed before start-up either. A substitute battery, with 1400 cold cranking amperes, as compared to the existing battery output of 1125 cold cranking amperes, was selected and placed in the existing battery space in each control van.

- Back-up Transformer (A)(1)(o) The scope of work called for moving an existing transformer from the substation over to a location adjacent to the emergency generator site to provide back-up service if any of the generator transformers should fail. It was originally thought that the transformer was no longer used by any of the chillers in Building 25910. During site investigations, it was determined that the transformer was in use and could not be reasonably moved to the new location. NORESCO arranged for the rental of a stand-by transformer that was brought on site for June – October.

Dates needed.

- Fuel System (A)(1)(p)(v) As part of the upgrade of the fuel delivery system, it was determined that not all of the generators had existing fuel pumps. A fuel transfer pump was installed in one unit (#63417, 3-3 noted above). In order to improve system reliability, the gravity fuel line systems were tied together to provide redundancy.

- Fuel System (A)(1)(p)(vi) Based upon the complete redesign and installation of a new fuel delivery piping system, an expansion tank was not required (as would have been the case if the existing fuel system had been retained.). As a result, an expansion tank was not installed.

- Electrical Substation Interconnect (A)(2)(a) The original electrical work in the substation called for establishing a rigid bus with a knife switch between the long bus and the short bus. Due to a lack of existing prints for the substation to enable engineering that effort, a strain bus arrangement was designed. This design was not approved by Fort Gordon because they believed that this arrangement would make it difficult to maintain, remove, and replace substation equipment. (Similar problems would have been caused by the original rigid bus configuration.

  Additionally, during the design, it was determined that the rigid bus configuration would result in establishing just a single bus. This was determined to be undesirable for the following reasons: in the event of a main breaker trip, from lightning or other causes, the entire Base would go dead, instead of just one half; and, several of the breakers in the substation required power on the load side in order to operate. Chris

Fortunato of Johnson Controls stated that he was not satisfied with the bus connection scheme for these reasons.

As a result of these limitations, instead of making physical changes to connect the busses, the relay system was redesigned. The long and short busses remain connected through the source bus and the Puffer breakers in their original configuration. The original goal to changes in the bus configuration was to provide the ability to take all of the output capacity of the emergency generator plant even if the output was greater than the level of consumption of the long bus. The reconfiguration of the reverse power relay system accomplishes 100% of that goal while maintaining two independent electric sources to provide power reliability to Fort Gordon.

- Electrical Substation Interconnect Relays (A)(2)(a) The buss interconnection, which was accomplished by reconfiguring the reverse power relays, utilized '86' lockout relays on each puffer. This was verbally approved in advance by Fort Gordon. After Chris Fortunato departed, Bob Calhoun stated that he would not accept this configuration and would require their immediate removal. NORESCO removed these components and all associated wiring. NORESCO was directed to install an '86' relay on the 'Z' breaker. NORESCO installed the relay as directed.

- Chilled Water Meters(A)(3)(b) During design it was determined that only a single vortex shedding chilled water meter would be required in Building 25910 as opposed to the two called for in the original work.

- New Substation Output Meter (A)(3)(c) Fort Gordon had installed three readout meters, one in each of the control vans, that supplied electrical consumption data from the substation. The meters' input was transmitted by a copper line from the substation. The data from these meters was to be used for determining the power draw from Georgia Power and used to sequence the output of the engine plant to maintain the proper demand level at the substation. As such, these were a critical component for implementing the operational strategy of the plant.

  During the month of May, these meters failed repeatedly, especially after lightning storms. While Georgia Power had responsibility for repairing the meters, this work was not performed in a timely manner. During discussions with the Georgia Power technician, NORESCO was informed that the meters installed did not have high reliability.

  Due to the critical nature of the data provided by these meters, NORESCO determined that a single, high quality meter should be installed in Van 1 and used as the signal source for controlling the power plant operation. The new meter was installed and connected using a new fiber optic communications line (that would not be subject to lightning interference) from the substation to Van 1.

- New Fiber Optic Connection (A)(3)(c) The Dorsett hardware used for monitoring the engine plant that was installed in the control vans had a copper communications wire

connection back to the UMCS system. NORESCO understood that this line could be used for the new engine plant control server.

The copper communications wire, however, could not be used as it was not compatible with the network communications protocols required for the Dorsett server level communications. As a result, NORESCO extended the fiber optic line from Building 25910 to the engine plant.

- Hospital Fill Station (A)(4)(c) The new fill station at the hospital was installed by Johnson Controls under a previous work order. The NORESCO subcontractor had already mobilized and ordered parts for this work in preparation for performing the work. When the subcontractor went to schedule the work, it was found that Johnson Controls had just completed the work – without notice to NORESCO

- Engine Operations (E)(1) The savings for this project were calculated based upon attaining a Customer Base Line demand level not exceeding approximately 17500 kW for the Fort Gordon electric meter during the G-10 operating period. On that basis, the engine plant would have to run a total of approximately 2,027 hours. As part of discussions leading to the final Task Order award, Fort Gordon requested that, if possible, the operation of the system should improve the total savings available from the measure.

  On that basis, NORESCO worked toward attaining a peak CBL level of 17000 kW as this would improve savings in both the Test Year and the subsequent years due to an improved Access Charge. Operation to meet that level required running below the target level in order to have a 'cushion' in case of electrical load excursions during the half-hour peak kW time intervals. At the conclusion of the operations in September, NORESCO had successfully limited the peak demand to 16,974 kW.

- Fuel Oil (B)(10),(F)(4) See the Initial M&V Report for a discussion of fuel use variance. Fuel use exceeded the original estimate of 268,301 gallons by 135,600 gallons (47%) due to:
  1) operating at a lower target level;
  2) warmer weather;
  3) slightly lower fuel efficiency than expected;
  4) an apparent increase in the Fort Gordon electric load compared with the Base Year; and,
  5) maintaining a small spinning reserve.

Excluded Items

- Lubrication Oil (B)(11)(F)(5) The scope of work called for NORESCO to purchase lubrication oil for the repairs and operation. The original estimate of oil consumption was based upon using 1 gallon/engine operation hour over the anticipated total of 2,027 hours. Since the goal of the project was to maximize potential savings, the

engines were run for additional hours. From June 1 – September 30, 2001, the engines were run a total of 4,464 hours.

Engine oil consumption was in line for the six units that were overhauled. However, the three 'new' engines (#63425, 3-1; #63483, 3-2; and #63417, 3-3) used slightly more than the expected amount of oil, averaging 1.1 gallon/operating hour. Due to emissions restrictions, these 'newer' engines were operated twice as much as each of the other 6 engines.

In addition to the increase in the consumption based upon engine use, oil use was increased due to additional oil changes required during operations. In one instance (#63488, 1-1), the turbo failure required an oil change. In two other instances (#65488, 1-1; and #63425, 3-1) lubrication oil was diluted by fuel oil due to failure of the fuel oil jumper lines, thus requiring that the oil be replaced.

The total purchase of oil was 6,723 gallons after June 1 compared to the original estimate of 2,027 gallons.

- UMCS Deficiency List (D)(1)(a)/(b) After turnover of the system, 30 cards were found in inventory that turned out to be defective. These cards required repair by Dorsett. NORESCO had been led to believe that all parts in stock were 'good'. Since the items were in storage, it assumed that they must have been defective prior to turning the system over to NORESCO.

  NORESCO provided a list of existing deficiencies for the UMCS system on May 31, 2001. As of the date of this report, final agreement on this list has not been reached between Fort Gordon and NORESCO.

- Turbo and Gear Train (F)(1) The turbo and rear gear train were replaced on one unit (#63488, 1-1) due to a failure during operation on June 4, 2001. Initial inspection revealed that the turbo idler gear had failed, dispersing metal debris into the gear teeth of the engine's rear gear train, damaging associated gears and related parts. This type of failure would not be evident during engine inspection and/or overhaul.

CONTRACT

8 Jan P91

C1

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON GEORGIA 30905-5000

REPLY TO ATTENTION OF
Directorate of Human Resources

8 January 00

Ms. Kay Raney
President, AFGE Local 2017
Fort Gordon, GA 30809

Dear Ms. Raney,

This is to inform you that the Directorate of Public Works is working on an Energy Savings Performance Contracting (ESPC) project pursuant to Title 42, Section 8287 of the United States Code. If this project is fully implemented, it will result, among other things, in contracting out the operation and maintenance of the Utility Monitoring and Control System (UMCS), as provided for in Article 5, Section 1b(3) of the Fort Gordon Labor-Management Agreement (LMA). This will result in implementing reduction-in-force (RIF) procedures for the seven employees who currently work in UMCS as Electronic Industrial Controls Mechanics, WG 2606-11.

No final action will be taken in regard to the seven affected employees until the requirements of the LMA, to include the consultation/negotiation requirements of Article 36 of the Agreement, have been complied with.

The point-of-contact if you need further information about this project is Ms. Sharon Henson, 791-3956 or the undersigned at 791-8997.

Sincerely,

Steven F. Rayle

Steven F. Rayle
Personnel Management Specialist

ENCL ONE

UNCLASSIFIED
CF: R.F.

C2

DEPARTMENT OF THE ARMY

HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

Mr. Lee/lg/AUTOVON
680-3143

16 DEC 1986

REPLY TO
ATTENTION OF

ATEN-FE

SUBJECT: Unresolved Issues from the TRADOC Chiefs of Staff Conference, 13-16 October 1986

Commanders, TRADOC Installations, ATTN: Chiefs of Staff, DEH/DIS, CA Program Managers
Commander, Fort Chaffee, ATTN: Chief of Staff and DFE, Fort Chaffee, AR 72905
Commander, NYAC & Fort Hamilton, ATTN: Chief of Staff and DEH, Brooklyn, NY 11252

1. Reference letter HQ TRADOC, ATCS, 21 Nov 86, subject: Unresolved Issues from the TRADOC Chiefs of Staff Conference, 13-16 October 1986.

2. The purpose of this letter is to provide you with information on why Energy Monitoring and Control Systems (EMCS) operation must be a Governmental-in-Nature (GIN) function:

a. EMCS is a real time computer based system for managing energy usage, for monitoring and controlling remote mechanical, electrical, and utility systems from a central location.

b. EMCS operator decisions have a direct impact on the installation mission, budget, personnel morale, welfare, productivity, and equipment. EMCS operators make independent judgments to determine the priorities of energy users and the most economical operational strategy for energy conservation. Their actions also reflect installation CG and CofS energy policy and direction.

c. EMCS operator decisions and actions impact on the whole installation. EMCS operation must be GIN because of the inseparability of those duties from the Energy Management function decision making process. (The concept of inseparability is spelled out in OMB Circular A-76.)

d. EMCS operation is a dynamic process. The daily operating requirements for EMCS are subject to change by the very nature of the DEH business; many of these changing requirements cannot be predicted. EMCS must be staffed to adequately carry out command energy goals and policies while providing the flexibility to accomplish post missions. EMCS success is directly dependent on the operator decisions in those cases.

ENCL ~~ONE~~ TWO

C2 P3

2

ATEN-FE
SUBJECT: Unresolved Issues from the TRADOC Chiefs of Staff Conference, 13-16 October 1986

3. Additionally, many operator functional tasks, if done by a contractor, would have to be reviewed or checked by a government representative prior to execution. These tasks should therefore be accomplished by the government.

4. Representative EMCS operator functions are shown at enclosure 1 for information. We now have 10 installations operating EMCS. All are done with in-house personnel. TRADOC policy is to continue to retain EMCS operation as a GIN function. This policy has been approved by the HQ TRADOC Commercial Activities staff and HQDA.

FOR THE COMMANDER:

Encl

for ROGER F. YANKOUPE
Colonel, GS
Deputy Chief of Staff, Engineer

C3 P4

Service: LEXSTAT®
Citation: 42 usc 8287

42 USCS § 8287

UNITED STATES CODE SERVICE
Copyright 2000, LEXIS Law Publishing, a division of Reed Elsevier Inc.
All rights reserved.

*** CURRENT THROUGH P.L. 106-372, APPROVED 10/27/00 ***
*** WITH A GAP OF 106-369 ***

TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 91. NATIONAL ENERGY CONSERVATION POLICY
ENERGY SAVINGS PERFORMANCE CONTRACTS

◆ GO TO CODE ARCHIVE DIRECTORY FOR THIS JURISDICTION

42 USCS § 8287 (2000)

§ 8287. Authority to enter into contracts

(a) In general.

(1) The head of a Federal agency may enter into contracts under this title [42 USCS §§ 8287 et seq.] solely for the purpose of achieving energy savings and benefits ancillary to that purpose. Each such contract may, notwithstanding any other provision of law, be for a period not to exceed 25 years. Such contract shall provide that the contractor shall incur costs of implementing energy savings measures, including at least the costs (if any) incurred in making energy audits, acquiring and installing equipment, and training personnel, in exchange for a share of any energy savings directly resulting from implementation of such measures during the term of the contract.

(2)

(A) Contracts under this title [42 USCS §§ 8287 et seq.] shall be energy savings performance contracts and shall require an annual energy audit and specify the terms and conditions of any Government payments and performance guarantees. Any such performance guarantee shall provide that the contractor is responsible for maintenance and repair services for any energy related equipment, including computer software systems.

(B) Aggregate annual payments by an agency to both utilities and energy savings performance contractors, under an energy savings performance contract, may not exceed the amount that the agency would have paid for utilities without an energy savings performance contract (as estimated through the procedures developed pursuant to this section) during contract years. The contract shall provide for a guarantee of savings to the agency, and shall establish payment schedules reflecting such guarantee, taking into account any capital costs under the contract.

(C) Federal agencies may incur obligations pursuant to such contracts to finance energy conservation measures provided guaranteed savings exceed the debt service requirements.

(D) A Federal agency may enter into a multiyear contract under this title [42 USCS §§ 8287 et seq.] for a period not to exceed 25 years, without funding of cancellation charges before cancellation, if--

(I) such contract was awarded in a competitive manner pursuant to subsection (b)(2), using procedures and methods established under this title [42 USCS §§ 8287 et seq.];

(ii) funds are available and adequate for payment of the costs of such contract for the first fiscal year;

(iii) 30 days before the award of any such contract that contains a clause setting forth a cancellation ceiling in excess of $ 10,000,000, the head of such agency gives written notification of such proposed contract and of the proposed cancellation ceiling for such

ENCL THREE

8 Jan

P91

C1

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON GEORGIA 30905-5000

REPLY TO ATTENTION OF
Directorate of Human Resources

8 January 00

Ms. Kay Raney
President, AFGE Local 2017
Fort Gordon, GA 30809

Dear Ms. Raney,

This is to inform you that the Directorate of Public Works is working on an Energy Savings Performance Contracting (ESPC) project pursuant to Title 42, Section 8287 of the United States Code. If this project is fully implemented, it will result, among other things, in contracting out the operation and maintenance of the Utility Monitoring and Control System (UMCS), as provided for in Article 5, Section 1b(3) of the Fort Gordon Labor-Management Agreement (LMA). This will result in implementing reduction-in-force (RIF) procedures for the seven employees who currently work in UMCS as Electronic Industrial Controls Mechanics, WG 2606-11.

No final action will be taken in regard to the seven affected employees until the requirements of the LMA, to include the consultation/negotiation requirements of Article 36 of the Agreement, have been complied with.

The point-of-contact if you need further information about this project is Ms. Sharon Henson, 791-3956 or the undersigned at 791-8997.

Sincerely,

Steven F. Rayle

Steven F. Rayle
Personnel Management Specialist

ENCL ONE

UN 1. EFFECD
CF. R.F.
C2

DEPARTMENT OF THE ARMY

HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

Mr. Lee/lg/AUTOVON
680-3143

REPLY TO
ATTENTION OF

16 DEC 1986

ATEN-FE

SUBJECT: Unresolved Issues from the TRADOC Chiefs of Staff Conference, 13-16 October 1986

Commanders, TRADOC Installations, ATTN: Chiefs of Staff, DEH/DIS, CA Program Managers
Commander, Fort Chaffee, ATTN: Chief of Staff and DFE, Fort Chaffee, AR 72905
Commander, NYAC & Fort Hamilton, ATTN: Chief of Staff and DEH, Brooklyn, NY 11252

1. Reference letter HQ TRADOC, ATCS, 21 Nov 86, subject: Unresolved Issues from the TRADOC Chiefs of Staff Conference, 13-16 October 1986.

2. The purpose of this letter is to provide you with information on why Energy Monitoring and Control Systems (EMCS) operation must be a Governmental-in-Nature (GIN) function:

a. EMCS is a real time computer based system for managing energy usage, for monitoring and controlling remote mechanical, electrical, and utility systems from a central location.

b. EMCS operator decisions have a direct impact on the installation mission, budget, personnel morale, welfare, productivity, and equipment. EMCS operators make independent judgments to determine the priorities of energy users and the most economical operational strategy for energy conservation. Their actions also reflect installation CG and CofS energy policy and direction.

c. EMCS operator decisions and actions impact on the whole installation. EMCS operation must be GIN because of the inseparability of those duties from the Energy Management function decision making process. (The concept of inseparability is spelled out in OMB Circular A-76.)

d. EMCS operation is a dynamic process. The daily operating requirements for EMCS are subject to change by the very nature of the DEH business; many of these changing requirements cannot be predicted. EMCS must be staffed to adequately carry out command energy goals and policies while providing the flexibility to accomplish post missions. EMCS success is directly dependent on the operator decisions in those cases.

ENCL ~~ONE~~ TWO

C3 P4

Service: LEXSTAT®
Citation: 42 usc 8287

42 USCS § 8287

UNITED STATES CODE SERVICE
Copyright 2000, LEXIS Law Publishing, a division of Reed Elsevier Inc.
All rights reserved.

*** CURRENT THROUGH P.L. 106-372, APPROVED 10/27/00 ***
*** WITH A GAP OF 106-369 ***

TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 91. NATIONAL ENERGY CONSERVATION POLICY
ENERGY SAVINGS PERFORMANCE CONTRACTS

◆ GO TO CODE ARCHIVE DIRECTORY FOR THIS JURISDICTION

42 USCS § 8287 (2000)

§ 8287. Authority to enter into contracts

(a) In general.

(1) The head of a Federal agency may enter into contracts under this title [42 USCS §§ 8287 et seq.] solely for the purpose of achieving energy savings and benefits ancillary to that purpose. Each such contract may, notwithstanding any other provision of law, be for a period not to exceed 25 years. Such contract shall provide that the contractor shall incur costs of implementing energy savings measures, including at least the costs (if any) incurred in making energy audits, acquiring and installing equipment, and training personnel, in exchange for a share of any energy savings directly resulting from implementation of such measures during the term of the contract.

(2)

(A) Contracts under this title [42 USCS §§ 8287 et seq.] shall be energy savings performance contracts and shall require an annual energy audit and specify the terms and conditions of any Government payments and performance guarantees. Any such performance guarantee shall provide that the contractor is responsible for maintenance and repair services for any energy related equipment, including computer software systems.

(B) Aggregate annual payments by an agency to both utilities and energy savings performance contractors, under an energy savings performance contract, may not exceed the amount that the agency would have paid for utilities without an energy savings performance contract (as estimated through the procedures developed pursuant to this section) during contract years. The contract shall provide for a guarantee of savings to the agency, and shall establish payment schedules reflecting such guarantee, taking into account any capital costs under the contract.

(C) Federal agencies may incur obligations pursuant to such contracts to finance energy conservation measures provided guaranteed savings exceed the debt service requirements.

(D) A Federal agency may enter into a multiyear contract under this title [42 USCS §§ 8287 et seq.] for a period not to exceed 25 years, without funding of cancellation charges before cancellation, if--

(I) such contract was awarded in a competitive manner pursuant to subsection (b)(2), using procedures and methods established under this title [42 USCS §§ 8287 et seq.];

(ii) funds are available and adequate for payment of the costs of such contract for the first fiscal year;

(iii) 30 days before the award of any such contract that contains a clause setting forth a cancellation ceiling in excess of $ 10,000,000, the head of such agency gives written notification of such proposed contract and of the proposed cancellation ceiling for such

ENCL THRGG

contract to the appropriate authorizing and appropriating committees of the Congress; and

(iv) such contract is governed by part 17.1 of the Federal Acquisition Regulation promulgated under section 25 of the Office of Federal Procurement Policy Act (41 U.S.C. 421) or the applicable rules promulgated under this title [42 USCS §§ 8287 et seq.].

(b) Implementation.

(1) (A) The Secretary, with the concurrence of the Federal Acquisition Regulatory Council established under section 25(a) of the Office of Federal Procurement Policy Act [41 USCS § 421(a)], not later than 180 days after the date of the enactment of the Energy Policy Act of 1992 [enacted Oct. 24, 1992], shall, by rule, establish appropriate procedures and methods for use by Federal agencies to select, monitor, and terminate contracts with energy service contractors in accordance with laws governing Federal procurement that will achieve the intent of this section in a cost-effective manner. In developing such procedures and methods, the Secretary, with the concurrence of the Federal Acquisition Regulatory Council, shall determine which existing regulations are inconsistent with the intent of this section and shall formulate substitute regulations consistent with laws governing Federal procurement.

(B) The procedures and methods established pursuant to subparagraph (A) shall be the procedures and contracting methods for selection, by an agency, of a contractor to provide energy savings performance services. Such procedures and methods shall provide for the calculation of energy savings based on sound engineering and financial practices.

(2) The procedures and methods established pursuant to paragraph (1)(A) shall--

(A) allow the Secretary to--

(i) request statements of qualifications, which shall, at a minimum, include prior experience and capabilities of contractors to perform the proposed types of energy savings services and financial and performance information, from firms engaged in providing energy savings services; and

(ii) from the statements received, designate and prepare a list, with an update at least annually, of those firms that are qualified to provide energy savings services;

(B) require each agency to use the list prepared by the Secretary pursuant to subparagraph (A)(ii) unless the agency elects to develop an agency list of firms qualified to provide energy savings performance services using the same selection procedures and methods as are required of the Secretary in preparing such lists; and

(C) allow the head of each agency to--

(i) select firms from the list prepared pursuant to subparagraph (A)(ii) or the list prepared by the agency pursuant to subparagraph (B) to conduct discussions concerning a particular proposed energy savings project, including requesting a technical and price proposal from such selected firms for such project;

(ii) select from such firms the most qualified firm to provide energy savings services based on technical and price proposals and any other relevant information;

(iii) permit receipt of unsolicited proposals for energy savings performance contracting services from a firm that such agency has determined is qualified to provide such services under the procedures established pursuant to paragraph (1)(A), and require agency facility managers to place a notice in the Commerce Business Daily announcing they have received such a proposal and invite other similarly qualified firms to submit competing proposals; and

(iv) enter into an energy savings performance contract with a firm qualified under clause (iii), consistent with the procedures and methods established pursuant to paragraph (1)(A).

(3) A firm not designated as qualified to provide energy savings services under paragraph (2)(A)(i) or paragraph (2)(B) may request a review of such decision to be conducted in accordance with procedures to be developed by the board of contract appeals of the General Services Administration.

(c) Sunset and reporting requirements. The authority to enter into new contracts under this section shall cease to be effective on October 1, 2003.

HISTORY:

(Nov. 9, 1978, P.L. 95-619, Title VIII, § 801, as added Apr. 7, 1986, P.L. 99-272, Title VII, Subtitle C, § 7201(a) in part, 100 Stat. 142; Oct. 24, 1992, P.L. 102-486, Title I, Subtitle F, § 155(a), 106 Stat. 2852; Feb. 10, 1996, P.L. 104-106, Div E, Title LVI, § 5607(e), 110 Stat. 702; Oct. 19, 1996, P.L. 104-316, Title I, § 122(s), 110 Stat. 3838.)

(As amended Nov. 13, 1998, P.L. 105-388, § 4(a), 112 Stat. 3477; Oct. 11, 2000, P.L. 106-291, Title III, § 335, 114 Stat. 997.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

The "Energy Policy Act of 1992", referred to in this section, is Act Oct. 24, 1992, P.L. 102-486, 106 Stat. 2776. For full classification of such Act, consult USCS Tables volumes.

Amendments:

1992. Act Oct. 24, 1992, designated the existing provisions as subsec. (a)(1), and added subsecs. (a)(2), (b), and (c).

1996. Act Feb. 10, 1996 (effective 180 days after enactment, as provided by § 5701 of such Act, which appears as 40 USCS § 1401 note, and subject to savings provisions and rules of construction set out in §§ 5702 and 5703 of such Act, which appear as 40 USCS § 1401 notes), in subsec. (b)(3), deleted "Procedures developed by the board of contract appeals under this paragraph shall be substantially equivalent to procedures established under section 111(f) of the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 759(f))." following "Administration.".

Act Oct. 19, 1996 (effective on enactment, as provided by § 101(e) of such Act, which appears as 2 USCS § 130c note), in subsec. (c), deleted "(1)" preceding "The authority", and deleted para. (2), which read:

"(2) Beginning one year after the date procedures and methods are established under subsection (b), and annually thereafter, for a period of five years after such date, the Comptroller General of the United States shall report on the implementation of this section. Such reports shall include, but not be limited to, an assessment of the following issues:

"(A) The quality of the energy audits conducted for the agencies.

"(B) The Government's ability to maximize energy savings.

"(C) The total energy cost savings accrued by the agencies that have entered into such contracts.

"(D) The total costs associated with entering into and performing such contracts.

"(E) A comparison of the total costs incurred by agencies under such contracts and the total costs incurred under similar contracts performed in the private sector.

"(F) The number of firms selected as qualified firms under this section and their respective shares of awarded contracts.

"(G) The number of firms engaged in similar activity in the private sector and their respective market shares.

"(H) The number of applicant firms not selected as qualified firms under this section and the reason for their nonselection.

"(I) The frequency with which agencies have utilized the services of Government labs to perform any of the functions specified in this section.

"(J) With the respect to the final report submitted pursuant to this paragraph, an assessment of whether the contracting procedures developed pursuant to this section and utilized by agencies have been effective and whether continued use of such procedures, as opposed to the procedures provided by existing public contract law, is necessary for implementation of successful energy savings performance contracts.".

1998. Act Nov. 13, 1998, in subsec. (c), substituted "on October 1, 2003" for "five years after the date procedures and methods are established under subsection (b)".

2000. Act Oct. 11, 2000, in subsec. (a)(2)(D)(iii), substituted "$ 10,000,000" for "$ 750,000".

Other provisions:

C3 4 P7

Energy efficiency incentive. Act Sept. 29, 1988, P.L. 100-456, Div A, Title VII, Part D, § 736, 102 Stat. 2006; Nov. 29, 1989, P.L. 101-189, Div A, Title III, Part C, § 331, 103 Stat. 1417, provides:

"(a) Energy conservation incentive. In order to provide additional incentive for the Secretary of a military department to enter into contracts under title VIII of the National Energy Conservation Policy Act (42 U.S.C. 8287 et seq.), the Secretary may use the energy cost savings realized by the United States during the first five years under any such contract in the manner provided in subsection (b). The amount of savings available for use under subsection (b) shall be determined as provided in subsection (c) and shall remain available for obligation until expended.

"(b) Authorized uses of savings. The energy cost savings realized by the United States in each of the first five years under a contract may be used as follows:

"(1) One-half of the amount of such savings may be used for the acquisition of energy conserving measures for military installations, and such measures may be in addition to any such energy conserving measures acquired for military installations under contracts entered into under title VIII of the National Energy Conservation Policy Act [42 USCS §§ 8287 et seq.].

"(2) One-half of the amount of such savings may be used for any morale, welfare, or recreation facility or service that is normally provided with appropriated funds, or for any minor military construction project (as defined in section 2805(a) of title 10, United States Code), that will enhance the quality of life of members of the Armed Forces at the military installation at which the energy cost savings were realized.

"(c) Determination of amount of savings. Not more than 90 days after the end of each of the first five years during which energy savings measures have been in operation under a contract entered into by the Secretary of a military department under title VIII of the National Energy Conservation Policy Act [42 USCS §§ 8287 et seq.], the Secretary of the military department concerned shall determine the amount of energy cost savings realized by the United States under the terms of the contract during that year by reason of the energy savings measures acquired and installed at that installation pursuant to that contract.

"(d) [Deleted]".

Architect of the Capitol as agency and head of agency for purposes of subsec. (b)(2)(B) and (C). Act Feb. 12, 1994, P.L. 103-211, Title IV, § 402, 108 Stat. 40, provides: "The Architect of the Capitol shall be considered the agency for the purposes of the election in section 801(b)(2)(B) of the National Energy Conservation Policy Act [subsec. (b)(2)(B) of this section] and the head of the agency for purposes of subsection (b)(2)(C) of such section [subsec. (b)(2)(B) of this section].".

NOTES:

CODE OF FEDERAL REGULATIONS

Department of Energy--Federal energy management and planning programs, 10 CFR Part 436.

Service: LEXSTAT®
Citation: 42 usc 8287
View: Full
Date/Time: Thursday, December 28, 2000 - 9:20 AM EST

About LEXIS-NEXIS | Terms and Conditions

Copyright © 2000 LEXIS-NEXIS Group. All rights reserved

C4 P8

FY03 ELECTRICITY RATE SCHEDULES

SCHEDULE A --- 9MW PLANT

DESCRIPTION	UNIT	Cost/Unit	UNITS	COST
Plant Lease	Plant	$ 78,000.00	3	$ 234,000
Plant M&R				
Generator Ops	Hours	$ 35.00	114	$ 4,004
Fuel Oil	Gallons	$ 1.13	11,440	12,927.20
		TOTAL		$ 250,931
KWHs Generated		(Gal)(138,690BTU/Gal)(.000293KWHs/BTU)		464,877.78

SCHEDULE B --- MAINTENANCE & REPAIR

PROJECT NUMBER		DESCRIPTION	PROJECT COST	AMORTIZATION SCHEDULE	FY02 COST
FP-00056-2P		Rpl Section of Feeder #9	$ 214,466	FY98 -- FY02	$ 42,893
DE-00155-8P		Rrp/Rpl Power Distribution Sys	$ 252,976	FY98 -- FY02	$ 50,595
DE-01181-7P		4KV Conversion	$ 274,161	FY98 -- FY02	$ 54,832
DE-01181-7P		4KV Conversion	$ 377,186	FY99 -- FY03	$ 75,437
DE-00955-6J		Repair Feeder #9 & #21	$ 1,068,900	FY99 -- FY03	$ 213,780
CCP02-0071		Replace PCB Transformers	$ 80,679	FY02 -- FY06	$ 16,136
		TOTAL			$ 437,538

SCHEDULE C --- UMCS OPERATIONS

RVICE	FACTOR	QUANTITY CONCUMED	CONVERSION	MBTUs	SUPPORT
					$ 1,065,218
CTRICITY	KWH	133,662,197	0.003413	456189.1	$ 478,566
NATURAL GAS	THERMs	1,087,997	$ 0.100000	108799.7	$ 114,137
LP GAS	GAL	302,150	$ 0.095475	28847.8	$ 30,263
FUEL OILS	GAL	166,106	$ 0.138690	23037.2	$ 24,167
HTW --- NG USAGE	THERMs	2,319,954	$ 0.100000	231995.4	$ 243,375
HTW --- FO USAGE	GAL	52,768	$ 0.138690	7318.4	$ 7,677
STEAM -- NG USAGE	THERMs	912,390	$ 0.100000	91239.0	$ 95,714
STEAM --- FO USAGE	GAL	16,580	$ 0.138690	2299.5	$ 2,412
CW --- ELEC USAGE	KWH	19,245,245	0.003413	65684.0	$ 68,906

SCHEDULE D --- CAPITALIZATION

FACILITY NO.	CAT CODE	DESCRIPTION	COST
303	81320	Substation	$ 10,000
27801	81320	Substation	$ 765,300
SUBST	81320	Substation	$ 17,500
XMFRS	81360	Transformers	$ 2,834,500
310	81160	Standby Generator - 2040 KV	$ -
24701	81160	Standby Generator - 800 KV	$ -
25330	81160	Standby Generator - 12.8 KV	$ -
25910	81160	Standby Generator - 63.8 KV	$ -
33509	81160	Standby Generator - 132 KV	$ -
EXTLT	81230	Exterior Lighting	$ 2,301,800
ELEAE	81241	Overhead Electric Lines	$ 4,791,600
ELEUG	81242	Underground Electric Lines	$ 2,634,000
		TOTAL	$ 13,354,700

FY03 ELECTRICITY RATE SCHEDULES

DULE E --- FY02 KWH DEMAND

	SUBSTATION #1					
	PEAK DEMAND	TOTAL KWHs	COST			TOTAL KWHs
OCT 01	20664	10428192	$	339,428		
NOV 01	17046	9140841	$	286,974		
DEC 01	15696	8828946	$	272,253		
JAN 02	16128	9208422	$	250,885		
FEB 02	15696	8331840	$	223,780		
MAR 02	17172	9549180	$	264,905		
APR 02	20826	10599912	$	318,833		
MAY 02	23040	11878794	$	355,493		
SUBTOTAL		77966127	$	2,312,551		
JUN 02	25164	13467051	$	669,308		
JUL 02	26046	14934420	$	751,206		
AUG 02	26046	14703543	$	749,743		
SEPT 02	24534	13240251	$	371,378		
SUBTOTAL		56345265	$	2,541,635		
TOTAL	248058	134311392	$	4,854,186		
AVERAGE	20671.5					
	SUBSTATION #2					
	PEAK DEMAND	TOTAL KWHs	COST			TOTAL KWHs
01	3586	1901475	$	62,107		12329667
01	3568	1745393	$	58,093		10886234
DEC 01	3355	1685822	$	55,748		10514768
JAN 02	3528	1674814	$	53,812		10883236
FEB 02	3442	1437109	$	47,696		9768949
MAR 02	3636	1795228	$	57,128		11344408
APR 02	4111	1979206	$	63,745		12579118
MAY 02	4075	2170283	$	70,477		14049077
SUBTOTAL		14389330	$	468,806		**92355457**
JUN 02	4504	2481994	$	113,490		15949045
JUL 02	4554	2664708	$	124,547		17599128
AUG 02	4532	2603134	$	131,498		17306677
SEPT 02	4471	2351082	$	119,666		15591333
SUBTOTAL		10100918	$	489,201		**66446183**
TOTAL	47362	24490248	$	958,007		158801640
AVERAGE	3946.8					

KEY NOTES FY02 DATA

SYSTEM CAPACITY	215,804,310
'WHs PURCHASED	158,801,640
'Hs GENERATED	464,878
ls LOSS 5%	7,963,326
...Hs CONSUMED	151,303,192

FY03 NATURAL GAS RATE SCHEDULES

SCHEDULE A --- MAINTENANCE & REPAIR

PROJECT NUMBER	DESCRIPTION	PROJECT COST	AMORTIZATION SCHEDULE	FY02 COST
NONE				

SCHEDULE B --- UMCS OPERATIONS

SERVICE	FACTOR	QUANTITY CONSUMED	CONVERSION	MBTUs	SUPPORT
					$ 1,065,218
ELECTRICITY	KWH	133,662,197	0.003413	456189.1	$ 478,566
NATURAL GAS	THERMs	1,087,997	$ 0.100000	108799.7	**$ 114,137**
LP GAS	GAL	302,150	$ 0.095475	28847.8	$ 30,263
FUEL OILS	GAL	166,106	$ 0.138690	23037.2	$ 24,167
HTW --- NG USAGE	THERMs	2,319,954	$ 0.100000	231995.4	$ 243,375
HTW --- FO USAGE	GAL	52,768	$ 0.138690	7318.4	$ 7,677
STEAM --- NG USAGE	THERMs	912,390	$ 0.100000	91239.0	$ 95,714
STEAM --- FO USAGE	GAL	16,580	$ 0.138690	2299.5	$ 2,412
CW --- ELEC USAGE	KWH	19,245,345	0.003413	65684.4	$ 68,906

SCHEDULE C --- CAPITALIZATION

FACILITY NO.	DSGN USE	DESCRIPTION	COST
GASLN	82410	Gas Pipelines	$ 749,400

KEY NOTES

Capacity: Annual daily peak (36,194 therms) x 365 days

Loss recorded on monthly bills.

FY03 LP GAS RATE SCHEDULES

SCHEDULE A --- MAINTENANCE & REPAIR

PROJECT NUMBER	DESCRIPTION	PROJECT COST	AMORTIZATION SCHEDULE	FY02 COST
NONE				

SCHEDULE B --- UMCS OPERATIONS

SERVICE	FACTOR	QUANTITY CONCUMED	CONVERSION	MBTUs	SUPPORT
					$ 1,065,218
ELECTRICITY	KWH	133,662,197	$ 0.003413	456189.1	$ 478,566
NATURAL GAS	THERMs	1,087,997	$ 0.100000	108799.7	$ 114,137
LP GAS	GAL	302,150	$ 0.095475	28847.8	**$ 30,263**
FUEL OILS	GAL	166,106	$ 0.138690	23037.2	$ 24,167
HTW --- NG USAGE	THERMs	2,319,954	$ 0.100000	231995.4	$ 243,375
HTW --- FO USAGE	GAL	52,768	$ 0.138690	7318.4	$ 7,677
STEAM -- NG USAGE	THERMs	912,390	$ 0.100000	91239.0	$ 95,714
STEAM --- FO USAGE	GAL	16,580	$ 0.138690	2299.5	$ 2,412
C[illegible] -- ELEC USAGE	KWH	19,245,245	$ 0.003413	65684.0	$ 68,906

SCHEDULE C --- CAPITALIZATION

FACILITY NO.	DSGN USE	DESCRIPTION	COST
NONE			

KEY NOTES

Percent losses calculated at 0%

95,000 BTU/Gal

FY03 FUEL OIL RATE SCHEDULES

SCHEDULE A --- MAINTENANCE & REPAIR

PROJECT NUMBER	DESCRIPTION	PROJECT COST	AMORTIZATION SCHEDULE	FY02 COST
NONE				

SCHEDULE B --- UMCS OPERATIONS

SERVICE	FACTOR	QUANTITY CONCUMED	CONVERSION	MBTUs	SUPPORT
					$ 1,065,218
ELECTRICITY	KWH	133,662,197	0.003413	456189.1	$ 478,566
NATURAL GAS	THERMs	1,087,997	$ 0.100000	108799.7	$ 114,137
LP GAS	GAL	302,150	$ 0.095475	28847.8	$ 30,263
FUEL OILS	GAL	166,106	$ 0.138690	23037.2	**$ 24,167**
HTW --- NG USAGE	THERMs	2,319,954	$ 0.100000	231995.4	$ 243,375
HTW --- FO USAGE	GAL	52,768	$ 0.138690	7318.4	$ 7,677
STEAM -- NG USAGE	THERMs	912,390	$ 0.100000	91239.0	$ 95,714
STEAM --- FO USAGE	GAL	16,580	$ 0.138690	2299.5	$ 2,412
- ELEC USAGE	KWH	19,245,245	0.003413	65684.0	$ 68,906

SCHEDULE C --- CAPITALIZATION

FACILITY NO.	DSGN USE	DESCRIPTION	COST
FO259	41181	Bulk Oil Storage	$ 6,300
FO260	41181	Bulk Oil Storage	$ 6,300
FO261	41181	Bulk Oil Storage	$ 41,500
FO262	41181	Bulk Oil Storage	$ 41,500
FO263	41181	Bulk Oil Storage	$ 300
FO310	41181	Bulk Oil Storage	$ 295,200
FO342	41181	Bulk Oil Storage	$ 7,000
FO343	41181	Bulk Oil Storage	$ 7,000
		TOTAL	**$ 405,100**

Y NOTES

ent losses calculated at 0.176%

FY03 ELECTRICITY RATE SCHEDULES

SCHEDULE A --- 9MW PLANT

DESCRIPTION	UNIT	Cost/Unit	UNITS	COST
Plant Lease	Plant	$ 78,000.00	3	$ 234,000
Plant M&R				
Generator Ops	Hours	$ 35.00	114	$ 4,004
Fuel Oil	Gallons	$ 1.13	11,440	12,927.20
		TOTAL		$ 250,931
KWHs Generated		(Gal)(138,690BTU/Gal)(.000293KWHs/BTU)		464,877.78

SCHEDULE B --- MAINTENANCE & REPAIR

PROJECT NUMBER		DESCRIPTION	PROJECT COST	AMORTIZATION SCHEDULE	FY02 COST
FP-00056-2P		Rpl Section of Feeder #9	$ 214,466	FY98 -- FY02	$ 42,893
DE-00155-8P		Rrp/Rpl Power Distribution Sys	$ 252,976	FY98 -- FY02	$ 50,595
DE-01181-7P		4KV Conversion	$ 274,161	FY98 -- FY02	$ 54,832
DE-01181-7P		4KV Conversion	$ 377,186	FY99 -- FY03	$ 75,437
DE-00955-6J		Repair Feeder #9 & #21	$ 1,068,900	FY99 -- FY03	$ 213,780
CCP02-0071		Replace PCB Transformers	$ 80,679	FY02 -- FY06	$ 16,136
		TOTAL			$ 437,538

SCHEDULE C --- UMCS OPERATIONS

VICE	FACTOR	QUANTITY CONCUMED	CONVERSION	MBTUs	SUPPORT
					$ 1,065,218
TRICITY	KWH	133,662,197	0.003413	456189.1	**$ 478,566**
NATURAL GAS	THERMs	1,087,997	$ 0.100000	108799.7	$ 114,137
LP GAS	GAL	302,150	$ 0.095475	28847.8	$ 30,263
FUEL OILS	GAL	166,106	$ 0.138690	23037.2	$ 24,167
HTW --- NG USAGE	THERMs	2,319,954	$ 0.100000	231995.4	$ 243,375
HTW --- FO USAGE	GAL	52,768	$ 0.138690	7318.4	$ 7,677
STEAM -- NG USAGE	THERMs	912,390	$ 0.100000	91239.0	$ 95,714
STEAM --- FO USAGE	GAL	16,580	$ 0.138690	2299.5	$ 2,412
CW --- ELEC USAGE	KWH	19,245,245	0.003413	65684.0	$ 68,906

SCHEDULE D --- CAPITALIZATION

FACILITY NO.	CAT CODE	DESCRIPTION	COST
303	81320	Substation	$ 10,000
27801	81320	Substation	$ 765,300
SUBST	81320	Substation	$ 17,500
XMFRS	81360	Transformers	$ 2,834,500
310	81160	Standby Generator - 2040 KV	$ -
24701	81160	Standby Generator - 800 KV	$ -
25330	81160	Standby Generator - 12.8 KV	$ -
25910	81160	Standby Generator - 63.8 KV	$ -
33509	81160	Standby Generator - 132 KV	$ -
EXTLT	81230	Exterior Lighting	$ 2,301,800
ELEAE	81241	Overhead Electric Lines	$ 4,791,600
ELEUG	81242	Underground Electric Lines	$ 2,634,000
		TOTAL	$ 13,354,700

C5 P15

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
NORTHEAST REGION
5 NORTH GATE RD
FORT MONROE, VA 23651-1048

SFIM-NE-PW-O (420)

MEMORANDUM FOR Commanders, TRADOC Installations (DPWs)

SUBJECT: Facilities Energy Program

1. The final FY 02 installation energy performance is enclosed at Enclosure 1. These results are based on energy data you reported to the Headquarters Redesigned Army DUERS Data System (HQRADDS) and include all FY 02 goal adjustments approved to date. Nine installations met their TRADOC assigned goal, resulting in over $5M in energy cost avoidance.

2. Congratulations to Forts Benning, Jackson, Bliss, Huachuca, Lee, Monroe, Rucker, Gordon, and Eustis for performing better than their assigned facilities energy goals.

3. As you are probably aware of by now, FY 03 is the transition year for management of the energy program, as well as other BASOPS functions. Each installation should now be coordinating actions with their new regional energy program manager. If you are unsure what region your installation is under or who your contact is, please refer to the enclosed Region map at Enclosure 2 and the Region Offices' Points of Contact at Enclosure 3. We may still be involved with some issues from our old TRADOC sites during FY 03, but most actions should be addressed with your new regional POC. Your regional energy manager will also provide your FY 03 and beyond energy goals.

4. We have thoroughly enjoyed working with each of you over the years, and appreciate your contributions toward making TRADOC's energy program the Army's best.

5. Please contact this office if you have any questions or concerns regarding your FY 02 energy performance. The IMA, Northeast Office (NERO) POCs for this action are Bill Dancy, COML (757) 788-2374, DSN 680-2374 or Blaney Hill, COML (757) 788-2473, DSN 680-2473.

3 Encls

STEPHEN S. MASON
Chief, DPW Division

SFIM-NE-PW-O (420)
SUBJECT: Facilities Energy Program

COORD: None.

MFR: This memo has 3-fold purposes:

1. Distribute final FY 02 energy performance results for TRADOC installations.

2. Inform installation energy coordinators to coordinate future actions with their new IMA Region POC.

3. Provide IMA Region map and Region Office POC list to installations.

Mr. Hill_____/2374/16 Dec 02
\P:\engusers\hillb\wp\02 Energy Performance letter.doc

P17

TRADOC Energy Information System (TEIS)

For the Period October, 2001 to September, 2002
Sorted by Percent of Goal
(based on data reported to the HQRADDS thru 12 Dec 02

12/17/2002
15:27

Installation	Annual Goal	Actual Consumption	Weather Factor	Weather Adjusted Consumption	Performance Against Goal (%)	Actual Waste /Savings
Fort Benning	2,007,065	1,672,882	0.95377	1,753,975	-12.610	-2,089,388
Fort Jackson	1,087,934	965,340	0.96876	996,465	-8.408	-775,685
Fort Bliss	1,380,825	1,265,767	0.98070	1,290,677	-6.529	-1,172,966
Fort Huachuca	798,624	710,281	0.93453	760,040	-4.831	-519,290
Fort Lee	751,290	675,140	0.93904	718,966	-4.303	-279,277
Fort Monroe	151,718	130,935	0.88417	148,089	-2.392	-38,408
Fort Rucker	763,939	734,086	0.98051	748,675	-1.998	-132,155
Fort Gordon	1,100,792	1,058,276	0.96364	1,098,210	-0.235	-20,873
Fort Eustis	792,020	727,896	0.91961	791,528	-0.062	-3,790
Fort Knox	1,961,402	1,791,337	0.90406	1,981,432	1.021	138,276
Fort Sill	1,274,375	1,274,178	0.97175	1,311,225	2.892	246,849
Fort L. Wood	1,485,206	1,464,930	0.95720	1,530,425	3.045	476,357
Fort Leavenworth	760,749	765,240	0.92738	825,166	8.468	479,864

212

Carlisle Barricks	172,159	180,947	0.93534	193,457	12.371	238,411
TRADOC	14,488,098	13,417,235	0.94833	14,148,330	-2.345	-3,452,075

NOTES:
Renewable Energy Sources NOT Included
Actual Waste / Savings: Dollars saved or wasted based on the actual Mbtus above or below goal for the report period.

The Signal

Encl 3

6 OCT 2000

000 Published for the Department of Defense and the Fort Gordon community

Fort Gordon tops TRADOC in annual energy savings

Glenn Stubblefield
Fort Gordon Energy Manager

Fort Gordon is leading the U.S. Army Training and Doctrine Command in energy performance this year, resulting in annual savings in excess of $600,000.

Since 1985, Fort Gordon has consistently consumed below the allowable goal set by TRADOC. Energy performance for TRADOC installations is determined by factoring the total area of occupied spaces and weather conditions for the geographical area into the actual energy consumed by each installation.

Because the money saved was not required to pay utility bills, more maintenance and repair work were accomplished; improving living and working conditions for the Fort Gordon community.

The goal of energy management is to reduce consumption and save the Army money. The goals are met by using a "three-pronged" approach: technology, command support, and Fort Gordon community participation.

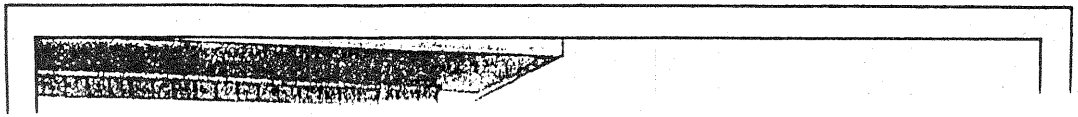
The Army recognizes October as Energy Awareness month. To commemorate this event, weekly articles will be published to give the Fort Gordon community energy conservation tips and information. Individual participation has a direct impact on the amount of energy consumed, so our positive actions will impact the amount of money needed to pay the bill.

Editor's Note: *Fort Gordon's energy manager, Glenn Stubblefield Jr. can be contacted for specific assistance at 791-6184 or email* ***stubbleg@gordon.army.mil*** *on energy matters. In addition, a limited amount of energy conservation related material (posters, thermometers, guidebooks, etc.) is available to assist the energy conservation effort.*

Energy fact:

All federal facilities are required to reduce energy use by 35 percent by 2010 relative to 1985 consumption levels, on a BTU per gross square foot basis. Currently, Fort Gordon is approximately 25 percent below the goal.

BOSS takes



Tricare chang to affe retiree

EAMC Public Affairs

During the next 1 will be significant way Eisenhower A Center delivers hea Prime retirees and members under 65 With these changes ees need to be mak to continue receivin

Eisenhower has s cess called "disem retirees and family r the age of 65 who ha in Tricare Prime. T these patients will n signed to a primary In addition, only sa available primary ments will be acce

P 20

THE SIGNAL
27 JAN 95
Encl 4

er shortage

Separation Incentive
rements resulted in the
tire Records Manage-
n of the Directorate of
Management There are
ldiers working in the
These soldiers will as-
ide support in every
but do not know ev-
and must confer with
the Staff Judge Advo-
headquarters at times
ng you. For more in-
1 791-5381/5382.

reakfast

nal Prayer Breakfast
8:30 a.m., Feb. 16 at
Club. Brig. Gen.
t, program executive
munications Systems,
uth, N.J., will be the
kets must be obtained
ee your unit chaplain.
nations: $2 for ser-
elow; $3 for staff ser-
rgeants first class; $5
. For more informa-
f Sgt. Gloria Scott at

jade News

of command

of command ceremony
D, 369th Signal Bat-
10 a.m., Feb. 10 on
The outgoing com-
pt. David R. Brigham,
oming commander is
L. Kerr. In the event
weather, the ceremony
n No. 4.

of command ceremony
D, 447th Signal Bat-
5 p.m., Jan. 27 behind
01. The outgoing com-
t. Michelle Nassar, and
commander is Capt.
ns. In the event of in-
er, the ceremony will
Entertainment Center.

acre installation.

We have outside training areas to accommodate unit training, small arms ranges, and an artillery impact area. Inside training space consists of 642 classrooms in 158 buildings. A Training and

As the largest resident school in TRADOC, we conduct 149 courses to than 17,000 students annually; develop communications doctrine to support Army and Joint requirements, and have proponent responsibil-

Eisenhower Army Medical Center. There is a total of five deployable battalions on our post. In addition to all the active units, we also support the training of over 30,000 Reserve and National Guard sol-

Next year's budget is proj
$97 [illegible] percent reduct

See Te

Fort Gordon tops in energy conservation among TRADOC

Spc. Annette B. Andrews
Signal Staff Writer

Five out of the last six years as Training and Doctrine Command leader isn't bad...it is great! Fort Gordon has received Major Army Command (MACOM) recognition for energy performance based on the number of buildings on post, since 1989.

"Although the post has been nominated before at the Department of the Army level, we in fact won a Secretary of the Army's Energy Conservation Award in 1991 and placed second in 1989. I have not yet received the official word if we are being nominated for fiscal year 1994," said Curtis Oglesby, energy manager.

Fort Jackson received the top TRADOC recognition in 1993, but Fort Gordon was a close second, according to Oglesby. The letters of recognition come out in December of the same year while the DA award will be presented in August of 1995.

Energy conservation recognition is not judged by an entry submission. All installations in MACOM are automatically viewed and judged by their energy consumption.

"TRADOC sets an energy goal based on the mission of the post and the square feet of structure. The numbers go to the Office of Engineers at TRADOC, Deputy Chief of Staff for Base Operations Support (DCSBOS), and that's where we measure up," said Oglesby.

Fort Gordon has an aggressive program in energy management, according to Oglesby. He said they use all the available sources of funding to get projects done and to improve the way this post uses energy.

"Fort Gordon competes with everyone else in the Army. We have good projects planned and this means we'll get more money," said Oglesby.

The aggressive program means we obtain funds from the Federal Energy Management Program and the Energy Conservation Investment Program to improve the existing systems which enables the post to save in the long run. Money that doesn't have to go out to the local utility companies can be used to do repairs that might not have been funded before.

"This is money that does not come out of the local budget. It is money that comes directly from the Army. This year we got $750,000 to do some plant work," said Oglesby. He said by investing money in energy systems now, they will pay for themselves a few years down the road.

Air, heat, computer system helps post save energy

Spc. Annette B. Andrews
Signal Staff Writer

Receiving top U.S. Army Training and Doctrine Command recognition is no small feat. These honors are due in part to a system controlled by a Hewlett-Packard mainframe computer and two monitors to view buildings hooked into the Dorsett infrascan system that controls all energy functions on Fort Gordon.

The Engineering Department is able to shutting off heating, air conditioning, fans, pumps, and hot water tanks anywhere on post, according to Doug Combs, Engineering Department electronic industrial controls mechanic.

The system is programmed by setting operational hours to coincide with duty hours and shuts down all the equipment when no one is in the building, saving money. Every building is equipped with computer cards which link the building to the mainframe. Problems can be detected and are visually displayed on the system. A technician can then be sent to repair the problem, thereby saving time and money, Combs said.

Older structures are not hooked into the mainframe, instead, they are linked by FM signals and can be activated or deactivated by radio transmittal.

Based on weather trends, heating units are activated in September or October. Curtis Oglesby, energy manager, observes weather conditions and depends on historical trends to advise the post commanders when it's best to activate heating or cooling.

The heat is typically turned off sometime in April and the air conditioning is activated in late April or early May, according to Oglesby. Summer brings a different concern to Engineering because Georgia Power cannot supply enough electricity to everyone in the area.

Fort Gordon pays an annual flat rate for energy used. This means when Georgia Power requests the post limit itself to an agreed 23.9 megawatts during curtailment periods, Engineering can shut down areas on post to meet the requirements.

Civilian reductio to come

Public Affairs Office

A reduction-in-force (announced Wednesda U.S. Army Signal Cent Gordon.

The reduction consis civilian positions. Seve rary employees are to be

However, some of th positions will be vacate attrition. That and ear ment and separation i to reduced the involunt ration actions to less tha manent employees.

Notices will be given t employees on Februar

Fort Gordon is seek duce the impact on ci ployees through a outplacement efforts, r trition, reassignments, l trols, and registration ority Placement Progr

A window of oppor Voluntary Separation Pay (VSIP) and Volun Retirement Authorit opened on Oct. 5, 1994 on Jan. 3, 1995.

The reduction-in-for on projected force changes and reduction workload in base oper port, training opera training support.

21

ort Gordon tops TRADOC in energy savings

ORT MONROE, VA. (TNS) — t Gordon will represent Training Doctrine Command as one of five alists in the 12th annual Secretary the Army Energy Conservation ard competition.

he other four are Fort Carson, o., Dugway Proving Ground, h, USMC Schweinfurt, Germany, and Fort Detrick, Md.

A Department of the Army evaluation team is currently in the process of visiting all five installations to determine the winner.

The finalists were picked on the strength of their energy conservation programs. Fort Gordon was the most energy-efficient post in TRADOC for fiscal year 1989. The fort's energy bill was slashed $1.5 million below the target set by TRADOC.

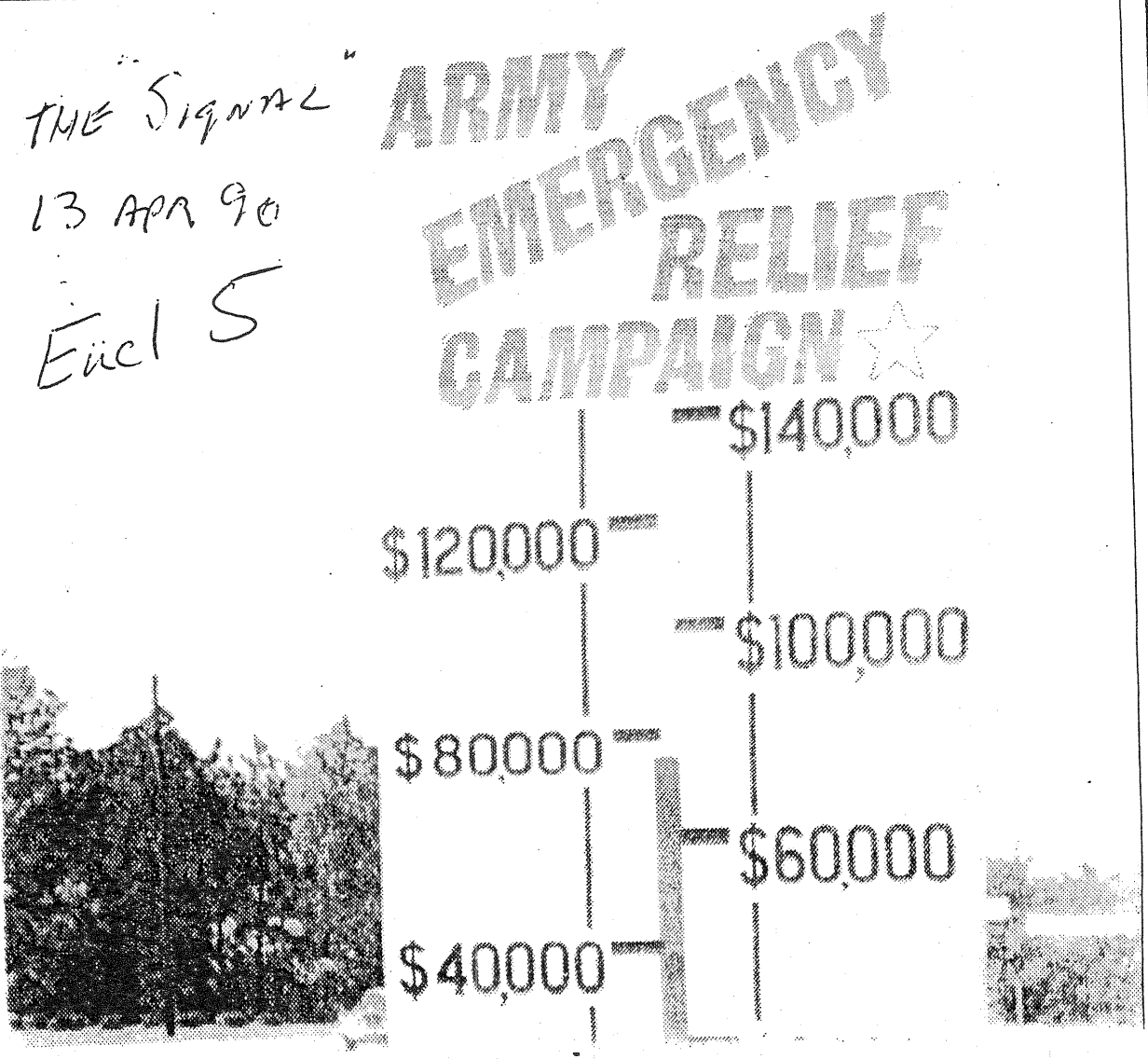
"Not only did Fort Gordon exceed the TRADOC goal by 13 percent but managers still maintained high quality of life standards, personal comfort and safety," said Greg Capra of TRADOC's deputy chief of staff for engineering.

"The program there is also command supported. Unused energy dollars go toward improving soldier readiness and quality of life for everybody who lives and works on Fort Gordon," Capra said.

Capra identified some actions taken by Fort Gordon energy management offi... to cut costs. They began their program by compiling an energy usage profile. Using that information, they targeted those areas where the largest cuts in energy consumption could be obtained with the least expenditure of resources.

— See ENERGY SAVINGS, Page 2

"THE Signal"
13 APR 90
Encl 5



Soldiers examine target after firing

Firing ranges 'targeted'

22

Local drill sergeant vies for top honor

FORT MONROE, VA. — Fort Gordon's representative, SSgt. Isidoro Morin, will join 33 other Army drill sergeants here April 16 to begin competing for the 21st annual Drill Sergeant of the Year Award.

Of the 34 noncommissioned officers, 21 are in the active Army and 13 are in the Army Reserve. Three of the sergeants are women — two active, one reserve.

All of them have already been selected as the best from among their peers in their training units. They are scheduled to undergo three days of intense competition that will test their physical abilities and knowledge of their jobs and the Army.

One drill sergeant from the active Army and one from the Reserve who score the highest will be named the Drill Sergeant of the Year for the respective components.

On the first day's judging, all contenders will take the standard Army physical fitness test (APFT).

"Each of them has to score 300 on the APFT or, at the least, in the high 290's, to have a chance to win the title," said SSgt. Vance Peronto, staff NCO in TRADOC's deputy chief of staff for training.

"All of them will be so close in abilities that the loss of a few points on any portion will take someone out of the running."

After the APFT, the contestants will demonstrate their technical knowledge and teaching abilities to teams of evaluators. Through the second and third days, each nominee will meet a panel of sergeants major from TRADOC headquarters and integrated training centers. Panel members will test the drill sergeants' knowledge of their jobs, the Army and current events.

The finalists are representing drill sergeants from throughout the Total Army. There are approximately 3,500 drill sergeants in the active Army and 5,600 in the Army Reserve. More than 350 drill sergeants in the active Army are women. There are about 50 women in the Reserve who are drill sergeant qualified.

The top drill sergeant from the active component will be awarded the meritorious service medal (MSM) and the Stephen Ailes Award. Ailes was secretary of the Army from 1964-65 and was instrumental in originating the first drill sergeant school at Fort Leonard Wood, Mo.

The Reserve winner also receives an MSM and the Ralph E. Haines Jr. Award. Haines was commander of Continental Army Command (the forerunner of TRADOC) from 1970-72.

Both winners receive the Army Times Eugene P. Famiglietti Award, named for the late editor of the Army Times.

The Association of the United States Army will present each winner a gold watch and sponsor them at the AUSA national meeting in October.

SIGNAL Photo by PFC Virgilio Stanford

Pv

Energy savings

THE SIGNAL 13 APR 90

From Page 1

There is an effective energy savings suggestion program, which pays people for ideas that save money.

Each building on Fort Gordon has a person who is the building monitor. Monitors ensure facilities are being used correctly, and they notify the engineers to correct any wasteful conditions. They also try to educate and train building occupants. The monitors are a prime source of energy-saving ideas.

Fort Gordon energy management officials have implemented "short term facilities retrofits" for structures. That means that engineers installed energy efficient windows, replaced incandescent lighting with more efficient fluorescent lighting, and changed to highly efficient motors and heaters, ventilators and air conditioners.

The computerized energy monitoring and control system (EMCS) has been expanded and heavily used. The EMCS automatically adjusts and controls energy use throughout the post, plus identifies problem areas. As a result, EMCS personnel are able to react quickly to minimize waste.

Much of the efficiency upgrade to Fort Gordon's facilities and equipment was paid with money from TRADOC's special energy projects fund.

"The fund is for installations to use on energy projects that have a payback period of three years or less," Capra said. "Gordon officials probably have taken advantage of the fund more than anyone else over the past several years."

So far in FY 1990, approximately $200,000 from the fund will be applied to energy saving projects at Fort Gordon.

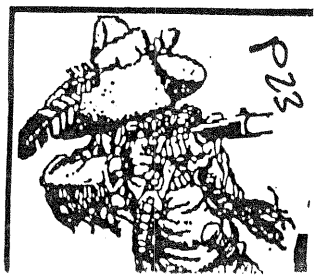
The post's communications media are heavily used to keep people informed of programs and goals. Energy information is disseminated through the post newspaper, radio station, cable TV and marquee boards at the entry gates.

"The Fort Gordon energy program is built on the principle that if people are not comfortable they will not be committed to the idea of energy conservation," Capra said. "That's why Fort Gordon's program has enjoyed remarkable success — it is engineers working with the community to eliminate waste and create efficient, productive environments."

Spotlig

Spotlight is open to all permanent party n either on the spot or at a supervisor's recommendations.

Name: Pvt. Julia Solanc
Age: 20
Hometown: Washingtor
Reasons for enlisting:
Years of active service
MOS: 91Y Eye Special
Reasons for choosing
because I enjoy the study
Job responsibilities:
glasses and run field of vi
Hardest job aspect: Pe
Most enjoyable job as
Outside interests/hobb
Goals: To obtain as mu
life



P23

Secretaries to be recognized April 22-28

Fort Gordon will observe Professional Secretaries Week, April 22-28, and the Federal Managers' Association, also will recognize Fort

The Fairways Chapter of Professional Secretaries International is

Institute will sponsor a tour of its facilities, a slide presentation and

C6

P91

DAJA-KL (DAIM- FD/10 APRIL 00) 27-1a Mr. Moreau/aem/588-6754
SUBJECT: The Applicability of OMB Circular A-76 to Energy Savings Performance Contracting (ESPC)

HQDA (DAJA-KL), Rosslyn, VA 22209 30 May 00

FOR: HQDA (DAIM-FD, Mr. Nerger), WASH DC 20310-0600

1. This office has been asked to provide a written opinion on the relationship between Energy Savings Performance Contracting (ESPC) authorized by 42 United States Code (USC) 8287, and the requirements of Office of Management & Budget (OMB) Circular A-76. Of particular interest is what requirements, if any, A-76 places on the Government when ESPC contracts result in displacement of current Federal employees. It is our opinion that A-76 does not apply at all to the ESPC process for the reasons stated below.

2. The most recent version of the statute authorizing ESPCs is 42 US Code 8287, which was revised in 1998. The relevant sections read as follows:

> "(a) In general.
>
> (1) The head of a Federal agency may enter into contracts under this title solely for the purpose of achieving energy savings and benefits ancillary to that purpose. Each such contract may, notwithstanding any other provision of law, be for a period not to exceed 25 years. Such contracts shall provide that the contractor shall incur costs of implementing energy savings measures, including at least the costs (if any) incurred in making energy audits, acquiring and installing equipment, and training personnel, in exchange for a share of the energy savings directly resulting from implementation of such measures during the term of the contract.
>
> (2) (A) Contracts under this title shall be energy savings performance contracts and shall require an annual energy audit and specify the terms and conditions of any Government payments and performance guarantees. Any such performance guarantee shall provide that the contractor is responsible for maintenance and repair services for any energy related equipment including computer software systems. ..."

3. The remaining sections of the statute discuss payments, obligation authority and implementation issues, which do not relate to the issue at hand. As we understand it, a question has arisen as to the obligation of the Government, when entering into an ESPC contract, to comply with the provisions of Office of Management and Budget (OMB) Circular A-76, particularly those portions of the Circular which mandate cost comparisons and certain protections for affected Government employees.

DAJA-KL
SUBJECT: The Applicability of OMB Circular A-76 to Energy Savings Performance Contracting (ESPC)

4. The latest version of OMB Circular A-76 was published in August 1983. The current version of the accompanying Supplemental Handbook was revised in March 1996. The Introduction to the Handbook describes its purpose as follows:

> " The August 1983 Office of Management and Budget (OMB) Circular No. A-76, *"Performance of Commercial Activities,"* established Federal policy for the performance of recurring commercial activities. This supplement replaces the Handbook issued with the 1983 Circular and provides updated guidance and procedures for determining whether recurring commercial activities should be operated under contract with commercial sources, in-house using Government facilities and personnel, or through interservice support agreements (ISSAs). The Revised Supplemental Handbook is an integral part of the 1983 Circular." (Introduction, page iii) (Emphasis added).

5. The Introduction to the 1996 Handbook also discusses the intended legal status of the 1983 Circular and the 1996 Supplemental Handbook, (which is also referred to as the "Supplement"):

> "The Circular and this Supplement are not intended and should not be construed to create any right or benefit, substantive or procedural, enforceable at law by a party against the United States, its agencies, its officers or any person. It should not be construed to create any substantive or procedural basis on which to challenge any agency action or inaction, except as set forth in Part I, Chapter 3, Paragraph K of this Supplement." (Introduction, page iii). [Paragraph K, Chapter 3 refers to "Appeals of Tentative Waiver and Cost Comparison Decisions"].

6. As we understand it, several Federal employee groups have asserted that A-76 procedures must be applied to the ESPC process, particularly in those instances when current Federal employees have the technical expertise to maintain and repair the energy savings equipment after it is purchased and installed by the contractor. It is our opinion that this assertion is not legally sound for the following reasons:

a. 42 US Code 8287 creates independent authority for ESPC contracting in order to achieve energy savings. Contracts must include the performance of an annual energy savings audit, and may include acquisition and installation of energy saving equipment, training of personnel in all aspects of saving energy, and the granting of a performance guarantee, which requires the contractor to be responsible for maintenance and repair of any energy related equipment. As we understand the concept, the contractor is responsible for all of the functions, and is paid a portion of the saved energy costs for a period of time, which may last up to 25 years.

DAJA-KL
SUBJECT: The Applicability of OMB Circular A-76 to Energy Savings Performance Contracting

b. Energy Savings Performance Contracts are not "Recurring Commercial Activities" within the meaning of the A-76 Supplemental Handbook.

c. Since A-76, by the terms of the Supplemental Handbook, creates "no substantive or procedural rights enforceable against the United States", it cannot be read as authority to challenge an action authorized by a Federal Statute.

7. It is our opinion that the passage of 42 USC 8287 is a clear indication that Congress did not intend to bring these projects under the purview of A-76. Since Congress would have no need to pass a new statute to merely authorize A-76 cost comparisons for energy savings projects, as the agencies already have such authority, the fact that such legislation was passed should be read as authorizing something beyond existing procedures. While it may be possible, in some cases, to argue that existing employees are capable of performing the maintenance function after any new energy savings equipment is installed by the contractor, the statute clearly contemplates a "package deal" Since the contractor is required to give a guarantee, and is responsible, by statute, for the maintenance and repair of the equipment, as his payment depends on compliance with the guarantee, there is no practical way to split this function and make current employees responsible for the maintenance function.

8. Another compelling rationale for concluding that ESPC contracts do not fall under A-76 is the fact that the energy savings projects performed under these contracts are not "Recurring Commercial Activities", which is what the Circular applies to, by its own terms (see paragraph 4). The Supplemental Handbook, at page 37, defines "recurring commercial activity" as:

"A recurring commercial activity is one that is required by the Government on a consistent and long-term basis. This definition does not imply an hourly, daily, monthly or annual requirement, but must, in a general sense, be repetitive in nature, wherein the expected workload can be reasonably estimated."

9. Clearly, energy savings projects performed under ESPCs are not recurring requirements. The energy savings measures or equipment are installed once, not repetitively. While there is a requirement for an annual measurement of the energy savings, to determine the costs the contractor has earned, this measurement function is not the primary purpose of the contract. Since ESPC projects are not recurring commercial activities, there is no obligation to follow any of the procedures in A-76.

10. Finally, it must be noted that by its own terms (See paragraph 6 (c)), the Handbook is not authority to challenge an action authorized by statute.

DAJA-KL
SUBJECT: The Applicability of OMB Circular A-76 to Energy Savings Performance Contracting

11. The Office of the Army General Counsel concurs in this opinion. Please feel free to call me at (703) 588-6754 if you wish to discuss this issue further.

Alfred E. Moreau

ALFRED E. MOREAU
ATTORNEY-ADVISOR
Contract Law Division

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 201
Washington, D.C. 20036-4505

January 18, 2002

Mr. Reuben R. Fullbright
1585 Hinton-Wilson Road
Harlem, GA 30814

Re: *OSC File No. MA-01-0767*

Dear Mr. Fullbright:

The Office of Special Counsel (OSC) has completed its investigation into your complaint against Army officials at Fort Gordon, Georgia. You lost your Electronic Industrial Controls Mechanic position with the Department of the Army when your position was abolished as the result of a contract with ERI Services, Inc. You alleged that this action was retaliation for disclosures that you made to agency officials and the Occupational Health and Safety Administration about health and safety issues, denial of training, and the failure to issue employees proper safety and personal protective equipment.

After carefully considering the information you provided and other information obtained during our investigation, we have made a preliminary determination to close our file in this matter without further action. As explained fully below, you have sixteen days from the date of this letter to comment on our preliminary determination to close our file in this matter.

A. 5 U.S.C. § 7121(g)

Initially, we have doubts about our jurisdiction over this case. Information obtained during our investigation reveals that you filed a grievance pursuant to your agency's negotiated grievance procedure before you filed the present OSC complaint. Under provisions of 5 U.S.C. § 7121(g)(2), an aggrieved employee affected by a prohibited personnel practice may elect not more than one of the following remedies: (1) to exercise his right to pursue this matter under his agency's negotiated grievance procedure, if any; (2) to file a timely appeal to the Merit Systems Protection Board; or (3) to submit a complaint to the Office of Special Counsel. As the evidence shows that you filed a grievance about the contracting out of your position before you filed the present OSC complaint, it appears that OSC does not have jurisdiction over your complaint.

B. Reprisal for Whistleblowing

Beyond our jurisdiction concerns, the other information we obtained during our investigation leads us to believe that we would be unable to prove to the Merit Systems Protection Board (Board) that your position was contracted out in retaliation for your whistleblowing. We evaluated this allegation as a possible violation of 5 U.S.C. § 2302(b)(8). Section 2302(b)(8) prohibits an official with personnel action authority from taking a personnel

action because an employee made disclosures of information that he reasonably believed evidenced a violation of law, rule or regulation, or a substantial and specific danger to public health or safety, among other things.

While it appears that you made disclosures that could be protected by (b)(8), the information gathered during our investigation indicates that the decision to contract with ERI Services, Inc., and abolish your Electronic Industrial Controls Mechanic position, was made independent of, and without regard to, your whistleblowing. Specifically, Mr. Stubblefield, Chief of Energy Management, was the official responsible for coordinating the contract with ERI Services, Inc., which was selected by the agency in September 1998 to develop energy cost savings measure proposals pursuant to 42 U.S.C. § 8287. He worked with the Army Corps of Engineers and ERI to develop a proposal for energy savings. The proposal was adopted and the agency entered into a contract with ERI which included ERI taking over the Utility Monitoring and Control System (UMCS), where you were employed as an Electronic Industrial Controls Mechanic.

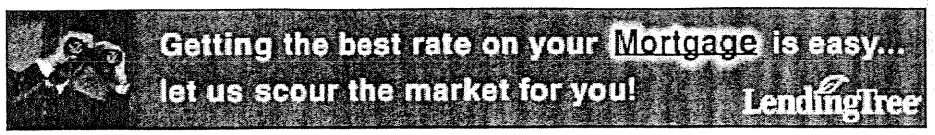
The contract with ERI was a direct conversion from government to contractor, and therefore, your government position was no longer needed. We have no evidence that the decision by the Corps of Engineers, Mr. Stubblefield, and other Army officials to enter into this contract, and abolish your position, was influenced in any way by your disclosures. Indeed, the officials whom you accused of retaliating against you – Messrs. Pavliscak, Oglesby, and Brown – did not have any input in the decision about contracting with ERI and abolishing your position. Consequently, we do not believe that we would be able to persuade the Board that 5 U.S.C. § 2302(b)(8) was violated in this instance, and we anticipate no further inquiry into this allegation.

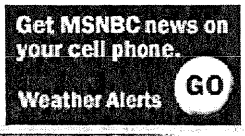
As noted above, you have sixteen days from the date of this letter to comment in writing on our determination to close this matter. 5 U.S.C. § 1214(a)(1)(D). We will consider any comments and respond to them as soon as possible after receipt. If we do not receive any comments by the end of the sixteen-day period, we anticipate closing the file, at which time we will send you a letter terminating the investigation and advising you of any additional rights you may have. Please send any comments to me at the above address. If you have any questions or wish to discuss this matter, please contact me at (202) 653-6005.

Sincerely,

Kristin L. Ellis
Attorney
Investigation and Prosecution Division

MSDS





QwestDex
online yellow pages
Find a Local Business

EPA cancer study fuels diesel debate

Bush team vows to uphold truck rules, working on farm equipment

M. Spencer Green / AP file

Diesel trucks, a mainstay of the U.S. economy, have come under fire as a health hazard. A new EPA report bolsters that view, but the industry says the findings are based on old diesel technology.

MSNBC STAFF AND WIRE REPORTS

WASHINGTON, Sept. 4 — Following the release of a landmark EPA report that links diesel exhaust to lung cancer, activists and diesel engine manufacturers on Wednesday were facing off over upcoming regulatory battles. The decade-long study found that inhaling diesel exhaust from large trucks and other sources over time can cause cancer in humans.

E-MAIL THIS COMPLETE STORY

MSNBC COVERAGE
HEALTH MSNBC's cancer coverage

ADVERTISING ON MSNBC

RESOURCE GUIDE
- Shop at B&N.com
- Auctions at uBid

• Yellow Pages
• Personals Channel
• Professional Tips
• Shopping

SPONSORS

Ameritrade
shareBuilder
NetBank. MEMBER FDIC
WATERHOUSE

'... long-term inhalation exposure is likely to pose a lung cancer hazard to humans, as well as damage the lung in other ways depending on exposure.'
— EPA STATEMENT ON REPORT

ACTIVISTS WELCOMED the study as clear evidence that diesel emissions need to be curbed not only from large trucks but also from off-road diesel-powered vehicles.

"The Bush administration should honor its commitment to fully implement clean air standards for diesel trucks and buses and should pass equivalent standards for diesel construction and farm equipment," Emily Figdor of the U.S. Public Interest Research Group said in a statement.

Environmental Protection Agency spokeswoman Steffanie Bell said the EPA expects to publish a rule early next year dealing with those off-road sources.

Tighter off-road rules would have a huge impact on farms, where two-thirds of all equipment runs on diesel.

The Bush administration had earlier vowed to uphold a Clinton-era rule to reduce truck tailpipe emissions by requiring cleaner-burning engines and diesel fuel with ultra-low sulfur content.

The diesel industry focused on the fact that the study was unable to quantify any cancer risk associated with exposure.

"EPA's review of the cancer issue is significant because it states that the actual risk from exposure to diesel particulates, the primary health risk concern, may be zero," said Jed Mandel, a spokesman for the Engine Manufacturers Association.

The industry also noted that the study was performed when most of the diesel engines on the road were built before the 1980s.

"While the report focused on the past, the future is clean diesel: diesel trucks and buses built today are more than eight times cleaner than just a dozen years

ago," Allen Schaeffer, executive director of the Diesel Technology Forum, said in a statement.

Added Mandel: "Whatever health questions may have existed in the past, we are eliminating them as a concern for the future."

Advertisement
— Enjoy —
0% APR*
on balance transfers for 12 months
>> GO
Add local news and weather to the MSNBC home page.

REPORT DETAILS

The EPA stated that the report "concludes that long-term inhalation exposure is likely to pose a lung cancer hazard to humans, as well as damage the lung in other ways depending on exposure."

"Short-term exposures, it added, "can cause irritation and inflammatory symptoms of a transient nature."

The report acknowledged that its findings were based on engines built before the mid-1990s, but said the results continued to be valid because the slow turnover of truck engines has kept many of these vehicles on the road.

While acknowledging uncertainties about the long-term health effects of exposure to diesel exhausts, the EPA report said studies involving both animal tests and occupational exposure suggest strong evidence of a cancer risk to humans.

"It is reasonable to presume that the hazard extends to environmental exposure levels" as well, the report said. "The potential human health effects of diesel exhausts is persuasive, even though assumptions and uncertainties are involved."

The report mirrors conclusions made previously in documents from various world health agencies and studies in California and is particularly significant because the EPA is the federal agency that regulates diesel emissions under the Clean Air Act.

The EPA's 651-page diesel health assessment did not attempt to estimate the probability of an individual getting cancer, given certain exposure to diesel exhaust. Such a risk assessment is commonly made by the EPA when gauging pollution health concerns.

In this case, the report said, "the exposure-response data are considered too uncertain" to produce a confident quantitative estimate of cancer risk to an individual.

Nevertheless, said the report, the "totality of evidence from human, animal and other supporting studies" suggests that diesel exhaust "is likely to be carcinogenic to humans by inhalation, and that this hazard applies to environmental exposure."

The report reiterated that environmental exposure to diesel exhausts poses short-term health problems

and in the long term has been shown to be a "chronic respiratory hazard to humans" contributing to increased asthma and other respiratory problems. In some urban areas diesel exhausts account for as much as a quarter of the airborne microscopic soot, the report said.

CONCERN ABOUT CREDIT SWAP

The report follows a vow from EPA Administrator Christie Whitman to go ahead with tougher diesel engine standards drafted during the Clinton administration.

And last month, with White House approval, the EPA rebuffed attempts by some diesel engine manufacturers to postpone the requirements, approving new penalties against manufacturers who fail to meet an October deadline for making cleaner-burning truck engines.

The engine rule does not affect emissions from trucks already on the road, although a separate regulation cutting the amount of sulfur in diesel fuel is expected to produce pollution reductions.

But some environmentalists worry that the Bush administration might allow engine manufacturers to go above the truck standards if they produce even cleaner off-road engines.

"Until recently, the Bush administration appeared committed to ushering in the next generation of diesel vehicles," said Figdor. "In June, however, the administration announced that they might allow diesel engine companies to trade emission-reduction credits rather than produce cleaner trucks and buses."

The EPA report is online at cfpub.epa.gov/ncea/cfm/nceawhatnew.cfm.

MSNBC.com's Miguel Llanos as well as The Associated Press and Reuters contributed to this report.

Health library
• Cancer

Environment news

Keep up with environment news: MSNBC's special section is updated regularly
• Click here to bookmark Environment News

MSNBC HEALTH NEWS
STORY West Nile-transplant link confirmed

STORY Shedding pounds with surgery
STORY EPA: Diesel probably causes cancer
STORY Starchy diet tied to pancreatic cancer
STORY 'Herbal' prostate pills contain drugs
HOME MSNBC Cover Page

ENVIRONMENT

STORY Powell heckled at the earth summit
STORY EPA: Diesel probably causes cancer
STORY Whale lands on boat; fisherman dies
STORY U.N. sounds alarm for great apes
HOME MSNBC Cover Page

MORE LINKS

MSNBC not responsible for content of Internet links

HEALTH MSNBC's Health Library
HEALTH Return to Health front page
MSN.COM MSN Health

MSNBC READERS' TOP 10

Would you recommend this story to other readers?

not at all 1 - 2 - 3 - 4 - 5 - 6 - 7 highly

BACK TO TOP

FREE MSN Explorer

MSNBC is optimized for
• Microsoft Internet Explorer
• Windows Media Player

• MSNBC Terms, Conditions and Privacy © 2002

MSDS Safety Information

FSC: 6850 NIIN: 00-181-7940 MSDS Date: 03/12/1991 MSDS Num: BJYSL
Submitter: D DG Tech Review: 05/14/1991 Status CD: C
Product ID: ANTIFREEZE/COOLANT JC-06 MFN: 01
Article: N Kit Part: N

Responsible Party Cage: 19630
Name: TEXACO CHEMICAL CO DIVISION OF TEXACO INC
Address: 4800 FOURANCE PLACE Box: 430
City: BELLAIRE State: TX Zip: 77401-2324
Country: US
Info Phone Number: 914-838-7509
Emergency Phone Number: 914-831-3400
Preparer's Name: UNKNOWN
Proprietary Ind: N Review Ind: Y
Published: Y Special Project CD: N

Contractor Summary

Cage: 19630 Name: TEXACO CHEMICAL CO DIV OF TEXCAO INC
Address: 4800 FOURNACE PL
City: BELLAIRE State: TX Zip: 77401
Country: US Phone: 713-961-3711

Item Description Information

Item Manager: S9G
Item Name: ANTIFREEZE
Specification Number: MIL-A-46153B Type/Grade/Class: REV B, AMD 1
Unit of Issue: DR Quantitative Expression: 00000000055GL
UI Container Qty: EACH Type of Container: 55 GAL DRUM

Ingredients

Cas: 107-21-1 Code: M RTECS #: KW2975000 Code: M
Name: ETHYLENE GLYCOL (SARA III)
% Text: 95 Environmental Wt:
Other REC Limits: NONE SPECIFIED

OSHA PEL: C 50 PPM Code: M OSHA STEL: Code:
ACGIH TLV: C 50 PPM,VAPOR; 9192 Code: M ACGIH STEL: N/P Code:
EPA Rpt Qty: 1 LB DOT Rpt Qty: 1 LB

Ozone Depleting Chemical: N

Cas: Code: X RTECS #: 1003136AP Code: M

Name: ADDITIVE PACKAGE

% Text: 5 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Health Hazards Data

LD50 LC50 Mixture ACUTE ORAL LD50 (RAT) IS 8540 MG/KG

Route Of Entry Inds - Inhalation: YES Skin: YES Ingestion: YES

Carcinogenicity Inds - NTP: NO IARC: NO OSHA: NO

Health Hazards Acute And Chronic

ACUTE: EYES: MAY CAUSE IRRITATION. SKIN: MAY CAUSE SLIGHT IRRITATION. INHALATION: VAPORS OR MISTS MAY CAUSE IRRITATION OF THE NOSE & THROAT. INGESTION: TOXIC WITH DELAYED SYMPTOMS. CHRONIC: PROLONGED SKIN CONTACT MAY RESULT IN ABSORPTION AN D MORE SEVERE IRRITATION. REPEATED INGESTION MAY CAUSE KIDNEY DAMAGE AND DEATH.

Explanation Of Carcinogenicity

NONE OF THE COMPOUNDS IN THIS PRODUCT IS LISTED BY IARC, NTP, OR OSHA AS A CARCINOGEN.

Signs And Symptions Of Overexposure

EYE AND SKIN IRRITATION. INHALATION OF VAPORS OR MISTS MAY CAUSE HEADACHE, NAUSEA, AND DROWSINESS. INGESTION CAUSES HEADACHE, WEAKNESS, CONFUSION, LOSS OF COORDINATION, DIZZINESS, NAUSEA, VOMITING, DECREASED BLOOD PRESSURE, INCREASED HEART RATE, PULMONARY EDEMA, KIDNEY FAILURE, UNCONSCIOUSNESS, CONVULSIONS, AND COMA.

Medical Cond Aggravated By Exposure

PERSONS WITH A HISTORY OF KIDNEY DISORDERS MAYBE AT INCREASED RISK FROM EXPOSURE.

First Aid

INHALATION: REMOVE TO FRESH AIR. CALL A PHYSICIAN IF DISCOMFORT PERSISTS. EYE: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES. CALL A PHYSICIAN. SKIN: WASH WITH PLENTY OF SOAP & WATER. REMOVE CONTAMINATED CLOTHING/SHOES. INGESTI ON: IF CONSCIOUS, GIVE 2 GLASSES OF WATER TO DRINK AND INDUCE VOMITING. GIVE NOTHING BY MOUTH IF UNCONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

Spill Release Procedures

VENTILATE AREA. AVOID BREATHING VAPOR. USE SELF-CONTAINED BREATHING APPARATUS OR SUPPLIED AIR FOR LARGE SPILLS OR CONFINED AREAS. CONTAIN SPILL IF POSSIBLE. WIPE UP OR ABSORB ON SUITABLE MATERIAL AND SHOVEL UP. PREVENT ENTRY INTO SEWERS & W ATERWAYS.

Neutralizing Agent

NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Methods

THIS PRODUCT DOES NOT MEET THE CRITERIA OF A HAZARDOUS WASTE IF DISCARDED IN ITS PURCHASED FORM. IT IS THE RESPONSIBILITY OF THE USER OF THE PRODUCT TO DETERMINE AT THE TIME OF DISPOSAL, WHETHER THE PRODUCT MEETS RCRA CRITERIA FOR HAZARDOUS WASTE.

Handling And Storage Precautions

MINIMUM FEASIBLE HANDLING TEMPERATURES SHOULD BE MAINTAINED. PERIODS OF EXPOSURE TO HIGH TEMPERATURES SHOULD BE MINIMIZED. AVOID WATER CONTAMINATION.

Other Precautions

ACUTE OR CHRONIC ORAL CONSUMPTION OF PRODUCTS CONTAININGETHYLENE GLYCOL CAN PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS, INCLUDINGDEATH. KEEP OUT OF REACH OF CHILDREN AND PETS. DO NOT USE IN POTABLE WATERSYSTEMS. MINIMIZE ALL EXPOSURES.

Fire and Explosion Hazard Information

Flash Point Method: PMCC

Flash Point: **Flash Point Text:** 244F,118C

Autoignition Temp: **Autoignition Temp Text:** N/K

Lower Limits: 3.2 **Upper Limits:** UNKNOWN

Extinguishing Media

USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL. WATER OR FOAM MAY CAUSE FROTHING.

Fire Fighting Procedures

WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.

Unusual Fire/Explosion Hazard

NONE

Control Measures

Respiratory Protection

IF VENTILATION DOES NOT MAINTAIN INHALATION EXPOSURES BELOW PEL(TLV), USE NIOSH/MSHA APPROVED ORGANIC VAPOR CARTRIDGE AND DUST/MIST PRE-FILTER RESPIRATORS AS PER CURRENT 29 CFR 1910.134, INSTRUCTIONS/WARNINGS AND NIOSH-RESPIRATOR SELECTION.

Ventilation

MECHANICAL (GENERAL) ROOM VENTILATION IS ADEQUATE IF USE IS ENCLOSED. LOCAL EXHAUST IS NEEDED IF VENTED INTO WORK AREA.

Protective Gloves

NEOPRENE, NITRILE, PVC OR NATURAL RUBBER

Eye Protection

SAFETY GOGGLES WITH OPTIONAL FACE SHIELD

Other Protective Equipment

EYE WASH STATION AND SAFETY SHOWER. INDUSTRIAL-TYPE WORK CLOTHING AND APRON AS REQUIRED.

Work Hygienic Practices

OBSERVE GOOD PERSONAL HYGIENE PRACTICES AND RECOMMENDED PROCEDURES. DO NOT WEAR CONTAMINATED CLOTHING OR FOOTWEAR.

Supplemental Safety and Health

DO NOT TAKE INTERNALLY. DO NOT GET ON SKIN OR IN EYES. AVOID PROLONGED OR REPEATED BREATHING OF VAPOR. DO NOT BREATHE MISTS. WASH THOROUGHLY AFTER HANDLING AND BEFORE EATING OR DRINKING OR SMOKING OR USING REST ROOM.

Physical/Chemical Properties

HCC: N1 **NRC/State LIC No:** N/R

Net Prop WT For Ammo: N/R

Boiling Point: **B.P. Text:** 388F,198C

Melt/Freeze Pt: **M.P/F.P Text:** UNKNOWN

Decomp Temp: **Decomp Text:** UNKNOWN

Vapor Pres: <0.1 **Vapor Density:** 2.14

Volatile Org Content %: **Spec Gravity:** 1.13

VOC Pounds/Gallon: **PH:** 10.8

VOC Grams/Liter: **Viscosity:** UNKNOWN

Evaporation Rate & Reference: UNKNOWN

Solubility in Water: COMPLETE

Appearance and Odor: SLIGHTLY HAZY BLUE-GREEN LIQUID

Percent Volatiles by Volume: 100 **Corrosion Rate:** UNKNOWN

Reactivity Data

Stability Indicator: YES

Stability Condition To Avoid: NOT APPLICABLE

Materials To Avoid: DO NOT ADD OR FORMULATE WITH AMINES.

Hazardous Decomposition Products: CARBON MONOXIDE AND CARBON DIOXIDE. BORON, MOLYBDENUM AND SILICON COMPOUNDS MAY ALSO BE RELEASED.

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization: NOT APPLICABLE

Toxicological Information

Toxicological Information: N/P

Ecological Information

Ecological: N/P

MSDS Transport Information

Transport Information: N/P

Regulatory Information

Sara Title III Information: N/P
Federal Regulatory Information: N/P
State Regulatory Information: N/P

Other Information

Other Information: N/P

HMIS Transportation Information

Responsible Party Cage: 19630
Trans ID NO: 54414
Product ID: ANTIFREEZE/COOLANT JC-06
MSDS Prepared Date: 03/12/1991
Review Date: 05/14/1991
MFN: 1
Submitter: D DG
Status CD: C
Article W/O MSDS: N
Tech Entry NOS Shipping Nm:
Radioactivity: N/R
Form:
Net Explosive Weight: N/R
Coast Guard AMMO Code: N/R
Magnetism: N/P
Net Unit Weight: 517.5 LBS
AF MMAC Code:
DOD Exemption NUM: N/R
Limited Quantity IND:
Multiple KIT Number: 0
Kit IND: N
Kit Part IND: N
Review IND: Y
Unit Of Issue: DR
Container QTY: EACH
Type Of Container: 55 GAL DRUM
Additional Data: NONE

Detail DOT Information

DOT PSN Code: ZZZ
Symbols: N/R
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
DOT PSN Modifier:
Hazard Class: N/R
UN ID Num: N/R
DOT Packaging Group: N/R
Label: N/R
Special Provision: N/R
Packaging Exception: N/R
Non Bulk Pack: N/R
Bulk Pack: N/R
Max Qty Pass: N/R
Max Qty Cargo: N/R
Vessel Stow Req: N/R
Water/Ship/Other Req: N/R

Detail IMO Information

IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IMO PSN Modifier:
IMDG Page Number: N/R
UN Number: N/R
UN Hazard Class: N/R
IMO Packaging Group: N/R
Subsidiary Risk Label: N/R
EMS Number: N/R
MED First Aid Guide NUM: N/R

Detail IATA Information

IATA PSN Code: ZZZ
IATA UN ID NUM: N/R
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IATA PSN Modifier:
IATA UN Class: N/R
Subsidiary Risk Class: N/R
IATA Label: N/R
UN Packing Group: N/R
Packing Note Passenger: N/R
Max Quant Pass: N/R
Max Quant Cargo: N/R
Packaging Note Cargo: N/R
Exceptions: N/R

Detail AFI Information

AFI PSN Code: ZZZ
AFI Symbols:
AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI PSN Modifier:
AFI Hazard Class: N/R
AFI UN ID NUM: N/R
AFI Packing Group: N/R
AFI Label: N/R
Special Provisions: N/A
Back Pack Reference: N/A

HMIS HAZCOM Label

Print Labels

Product ID: ANTIFREEZE/COOLANT JC-06
Cage: 19630
Assigned IND: N
Company Name: TEXACO CHEMICAL CO DIV OF TEXCAO INC
Street: 4800 FOURNACE PL
PO Box:
City: BELLAIRE
State: TX
Zipcode: 77401
Country: US
Health Emergency Phone: 914-831-3400
Label Required IND: Y
Date Of Label Review: 05/14/1991
Status Code: C
MFG Label NO:
Label Date: 05/14/1991
Year Procured: N/K

Origination Code: G
Eye Protection IND: YES
Signal Word: WARNING
Health Hazard: Moderate
Contact Hazard: Moderate
Fire Hazard: Slight
Reactivity Hazard: None

Chronic Hazard IND: Y
Skin Protection IND: YES
Respiratory Protection IND: N/P

Hazard And Precautions

HARMFUL OR FATAL IF SWALLOWED. MAY CAUSE KIDNEY AND NERVOUS SYSTEM DAMAGE. MAY CAUSE EYE IRRITATION. KEEP OUT OF REACH OF CHILDREN AND PETS. ATTENTION! POSSIBLE BIRTH DEFECT HAZARD. CONTAINS ETHYLENE GLYCOL WHICH MAY CAUSE BIRTH DEFECTS BAS ED ON ANIMAL DATA. DO NOT DRINK ANTIFREEZE OR SOLUTION. AVOID CONTACT WITH EYES. AVOID BREATHING MIST OR VAPOR. WASH THOROUGHLY AFTER HANDLING. FIRST AID: INGESTION: IF CONSCIOUS, GIVE TWO GLASSES OF WATER AND INDUCE VOMITING. NEVER GIVE AN YTHING BY MOUTH TO AN UNCONSCIOUS PERSON. INHALATION: REMOVE TO FRESH AIR. EYES: FLUSH WITH PLENTY OF WATER FOR 15 MINUTES. GET IMMEDIATE MEDICAL ATTENTION.

This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever expressly or implied warrants, states, or intends said information to have any application, use or viability by or to any person or persons outside the Department of Defense nor any person or persons contracting with any instrumentality of the United States of America and disclaims all liability for such use. Any person utilizing this instruction who is not a military or civilian employee of the United States of America should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation regardless of similarity to a corresponding Department of Defense or other government situation.

HMIS Sponsored by
DEFENSE SUPPLY CENTER RICHMOND

MSDS Safety Information

FSC: 9140 NIIN: 00-000-0184 MSDS Date: 05/27/1992 MSDS Num: BRTDJ
Submitter: D DG Tech Review: 01/25/1994 Status CD: C
Product ID: 00456 TEXACO DIESEL 2 MFN: 01
Article: N Kit Part: N

Responsible Party Cage: 38341
Name: TEXACO REFINING AND MARKETING INC
Address: 1111 RUSK ST Box: 1404
City: HOUSTON State: TX Zip: 77002-3310
Country: US
Info Phone Number: 914-838-7204 914-838-7336
Emergency Phone Number: 914-831-3400 800-424-9300(CHEMTREC)
Preparer's Name: UNKNOWN
Proprietary Ind: N Review Ind: Y
Published: Y Special Project CD: N

Contractor Summary

Cage: 38341 Name: MARIS CRANE AND HOIST CO INC (CAGE CANCELLED)
Address: N/K
City: PHILADELPHIA State: PA Zip: 19092
Country: US Phone: NONE

Cage: 0SAD8 Name: SAPP BROS BIG C
Address: 3350 E I-80 SERVICE
City: CHEYENNE State: WY Zip: 82009
Country: US Phone: UNKNOWN

Item Description Information

Item Manager: S9F
Item Name: USED TO BE 26648
Specification Number: VV-F-800 Type/Grade/Class: DF2,LOW SULFUR
Unit of Issue: GL Quantitative Expression: NK
UI Container Qty: UNKNOWN Type of Container: UNKNOWN

Ingredients

Cas: Code: X RTECS #: 1010390HC Code: M
Name: HYDROCARBONS,C-6 TO C-20,FRACTIONATED BET 325-675F
% Text: 100 Environmental Wt:
Other REC Limits: NONE RECOMMENDED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 1010360HC Code: M

Name: HYDRCARBONS;HYDRODESULFURIZED;CATALYTIC CRACKED

% Text: UNKNOWN Environmental Wt:

Other REC Limits: NONE RECOMMENDED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 1010361TA Code: M

Name: TRICYCLIC AROMATIC HYDROCARBONS

% Text: UNKNOWN Environmental Wt:

Other REC Limits: NONE RECOMMENDED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 1010362BC Code: M

Name: BICYCLIC AROMATIC HYDROCARBONS

% Text: UNKNOWN Environmental Wt:

Other REC Limits: NONE RECOMMENDED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 71-43-2 Code: M RTECS #: CY1400000 Code: M

Name: BENZENE (SARA III)

% Text: 0-0.36 Environmental Wt:

Other REC Limits: NONE RECOMMENDED

OSHA PEL: 1PPM/5STEL;1910.1028 Code: M OSHA STEL: Code:

ACGIH TLV: 10 PPM; A2; 9293 Code: M ACGIH N/P STEL: Code:

EPA Rpt Qty: 10 LBS DOT Rpt Qty: 10 LBS

Ozone Depleting Chemical: N

Cas: Code: X RTECS #: 1010362BC Code: M
Name: BICYCLIC AROMATIC HYDROCARBONS
% Text: UNKNOWN Environmental Wt:
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:
ACGIH TLV: NOT ESTABLISHED Code: M ACGIH STEL: N/P Code:
EPA Rpt Qty: DOT Rpt Qty:
Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999VC Code: M
Name: % VOC.
% Text: 100 Environmental Wt:
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:
ACGIH TLV: NOT ESTABLISHED Code: M ACGIH STEL: N/P Code:
EPA Rpt Qty: DOT Rpt Qty:
Ozone Depleting Chemical:

Health Hazards Data

LD50 LC50 MixtureLD50 ORAL RAT=9ML/KG
Route Of Entry Inds - Inhalation: YES Skin: YES Ingestion: NO
Carcinogenicity Inds - NTP: YES IARC: YES OSHA: YES

Health Hazards Acute And Chronic

EYES:IRRITATION.SKIN:PRODUCT IS DERMALLY ABSORBED AND CAUSES IRRITATION.INHAL:CAUSE IRRITATIN OF THE NOSE,THROAT AND POSSIBLE ASPHYXIATION.INGEST:IRRITANT.MAY CAUSE LUNG DAMAGE IF VOMITED AFTER SWALLOWING.CHRONIC:THIS PRODUCT CONTAINS BENZE NE WHICH HAS BEEN ASSOCIATED WITH LEUKEMIA.

Explanation Of Carcinogenicity

CONTAINS BENZENE [71-43-2] WHICH IS LISTED BY NTP AND IARC AND REGULATED BY OSHA AS A CARCINOGEN.MIDDLE DISTILLATES,IARC

Signs And Symptions Of Overexposure

EYES:REDNESS.SKIN:REDNESS,SWELLING,BURNS,BLISTERS,TISSUE DESTRUCTION.INHAL:HEADACHE,NAUSEA,VOMITING,DIZZINESS,DROWSINESS,EUPHORIA,LOSS OF COORDINATION,DISORIENTATION.INGEST:NAUSEA.DIARRHEA.

Medical Cond Aggravated By Exposure

MAY AGGRIVATE EXISTING DERMATITIS.

First Aid

EYES:FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPENED.GET MEDICAL ATTENTION.SKIN:REMOVE CONTAMINATED CLOTHING;FLUSH WITH WATER.GET MEDICAL ATTENTION.INGEST:GET PROMPT QUALIFIED MEDICAL ATTENTION.IF VOMITING OCCURS KEEP HEAD LOWE R THAN HIPS.INHAL:REMOVE TO FREAH AIR.GIVE OXYGEN OR ARTIFICIAL RESPIRATION IF NEEDED.GET MEDICAL ATTENTION.

Spill Release Procedures

VENTILATE AREA;AVOID BREATHING VAPORS.USE SCBA FOR LARGE SPILLS/CONFINED AREAS.CONTAIN SPILL.SOAK UP WITH AN INERT NON-COMBUSTIBLE ADSORBANT;PLACE IN ANA APPROPRIATE CONTAINER FOR DISPOSAL.KEEPOUT OF WATERWAYS.CLEAN SPILL AREA TO REMOVE SLI PPERINESS.

Neutralizing Agent

NONE

Waste Disposal Methods

THIS PRODUCT IS CONSIDER RCRA HAZARDOUS WASTE COSE D018(BENZENE-TOXIC).DISPOSE OF IN ACCORDANCE WITH FEDERAL,STATE AND LOCAL REGULATIONS.

Handling And Storage Precautions

KEEP AWAY FROM HEAT AND OPEN FLAMES.HANDLE IAW OSHA 1910.106.

Other Precautions

PLACARDING IS REQUIRED FOR SHIPMENTS OVER 110 GALLONS.

Fire and Explosion Hazard Information

Flash Point Method: PMCC
Flash Point:
Flash Point Text: 160F,71C
Autoignition Temp:
Autoignition Temp Text: N/A
Lower Limits: 0.52
Upper Limits: 4.1

Extinguishing Media

WATER SPRAY,DRY CHEMICAL,FOAM,CARBON DIOXIDE.WATER OR FOAM MAY CAUSE FROTHING.

Fire Fighting Procedures

USE A SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE EQUIPMENT.COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.

Unusual Fire/Explosion Hazard

VAPORS ARE HEAVIER THAN AIR,CAN TRAVEL DISTANCES ALONG THE GROUND,AND FLASHBACK AT THE SOURCE.

Control Measures

Respiratory Protection

WHERE ENVIRONMENTAL CONTROLS ARE LACKING OR IN ENCLOSED SPACES USE A SELF-CONTAINED BREATHING APPARATUS.

Ventilation

LOCAL VENTILATION(EXPLOSION-PROOF) AT THE WORKSITE;MECHANICAL(GENERAL) VENTILATION TO MAINTAIN TLV/PEL.

Protective Gloves

IMPERVIOUS

Eye Protection

CHEMICAL GOGGLES;FACE SHIELD

Other Protective Equipment

EYE WASH STATION,PROTECTIVE CLOTHING TO AVOID SKIN CONTACT.

Work Hygienic Practices

WASH HANDS.SEPERATE WORK CLOTHES FROM STREET CLOTHES.LAUNDER WORK CLOTHES BEFORE REUSE.KEEP FOOD OUT OF THE WORK AREA.

Supplemental Safety and Health

HMIS SPOKE TO ROGER LEISENRING AT TEXACO ON 94024.HE TOLD US THAT 456 IS THE OVERALL PRODUCT CODE FOR HIGH SULFUR DIESEL #2.449 IS SPECIFIC TO A PARTICULAR PIPELINE.HE TOLD US THAT THERE IS LITTLE DIFFERENCE IN THE COMPOSITION BETWEEN THEM, BUT TEXACO DECIDED NOT TO DROP THE TWO CODES ...THEREFORE HMIS HAS 2 RECORDS.

Physical/Chemical Properties

HCC: V4 **NRC/State LIC No:** N/R

Net Prop WT For Ammo: N/R

Boiling Point: **B.P. Text:** 650F,343C

Melt/Freeze Pt: **M.P/F.P Text:** N/K

Decomp Temp: **Decomp Text:** N/K

Vapor Pres: LOW **Vapor Density:** N/K

Volatile Org Content %: **Spec Gravity:** 0.852

VOC Pounds/Gallon: **PH:** N/K

VOC Grams/Liter: **Viscosity:** 3.0CST @100F

Evaporation Rate & Reference: N/K

Solubility in Water: NIL

Appearance and Odor: LIQUID;CLEAR,BRIGHT;CHARACTERISTIC ODOR

Percent Volatiles by Volume: 100 **Corrosion Rate:** N/K

Reactivity Data

Stability Indicator: YES

Stability Condition To Avoid: HIGH HEAT,SOURCES OF IGNITION.

Materials To Avoid: STRONG OXIDIZERS.

Hazardous Decomposition Products: CARBON MONOXIDE,CARBON DIOXIDE AND IRRITATING ALDEHYDES AND KETONES.

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization: NONE

Toxicological Information

Toxicological Information: N/P

Ecological Information

Ecological: N/P

MSDS Transport Information

Transport Information: N/P

Regulatory Information

Sara Title III Information: N/P
Federal Regulatory Information: N/P
State Regulatory Information: N/P

Other Information

Other Information: N/P

MSDS Transportation Information

Responsible Party Cage: 38341
Trans ID NO: 43108
Product ID: 00456 TEXACO DIESEL 2
MSDS Prepared Date: 05/27/1992
Review Date: 01/25/1994
MFN: 1
Submitter: D DG
Status CD: C
Article W/O MSDS: N
Tech Entry NOS Shipping Nm:
Radioactivity:
Form:
Net Explosive Weight:
Coast Guard AMMO Code:
Magnetism: N/P
Net Unit Weight: UNKNOWN
AF MMAC Code:
DOD Exemption NUM:
Limited Quantity IND:
Multiple KIT Number: 0
Kit IND: N
Kit Part IND: N
Review IND: Y
Unit Of Issue: GL
Container QTY: UNKNOWN
Type Of Container: UNKNOWN
Additional Data: NONE

Detail DOT Information

DOT PSN Code: EXF
Symbols: D
DOT Proper Shipping Name: DIESEL FUEL
DOT PSN Modifier:
Hazard Class: 3
UN ID Num: NA1993
DOT Packaging Group: III
Label: NONE
Special Provision: B1
Packaging Exception:
Non Bulk Pack: 203
Bulk Pack: 242
Max Qty Pass: 60 L
Max Qty Cargo: 220 L
Vessel Stow Req: A
Water/Ship/Other Req:

Detail IMO Information

IMO PSN Code: HRR
IMO Proper Shipping Name: GAS OIL
IMO PSN Modifier:
IMDG Page Number: 3375 UN Number: 1202
UN Hazard Class: 3.3 IMO Packaging Group: III
Subsidiary Risk Label: -
EMS Number: 3-07 MED First Aid Guide NUM: 311

Detail IATA Information

IATA PSN Code: MTX IATA UN ID NUM: 1202
IATA Proper Shipping Name: GAS OIL
IATA PSN Modifier:
IATA UN Class: 3 Subsidiary Risk Class:
IATA Label: FLAMMABLE LIQUID
UN Packing Group: III Packing Note Passenger: 309
Max Quant Pass: 60L Max Quant Cargo: 220L
Packaging Note Cargo: 310 Exceptions: A3

Detail AFI Information

AFI PSN Code: JEV AFI Symbols:
AFI Proper Shipping Name: DIESEL FUEL
AFI PSN Modifier: ,ALSO SEE GAS OIL
AFI Hazard Class: 3 AFI UN ID NUM: UN1202
AFI Packing Group: III
AFI Label:
Special Provisions: P5 Back Pack Reference: A7.3

HMIS HAZCOM Labe

Print Labels

Product ID: 00456 TEXACO DIESEL 2
Cage: 38341 Assigned IND: N
Company Name: MARIS CRANE AND HOIST CO INC (CAGE CANCELLED)
Street: N/K PO Box:
City: PHILADELPHIA State: PA Zipcode: 19092
Country: US
Health Emergency Phone: 914-831-3400 800-424-9300(CHEMTREC)
Label Required IND: Y Date Of Label Review: 11/04/1993
Status Code: C MFG Label NO: UNKNOWN
Label Date: 11/04/1993 Year Procured: N/K

Origination Code: G
Eye Protection IND: YES
Signal Word: WARNING
Health Hazard: Moderate
Contact Hazard: Moderate
Fire Hazard: Moderate
Reactivity Hazard: None

Chronic Hazard IND: N/P
Skin Protection IND: YES
Respiratory Protection IND: YES

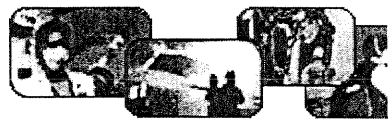
Hazard And Precautions

EYES:IRRITATION.SKIN:PRODUCT IS DERMALLY ABSORBED AND CAUSES IRRITATION.INHAL:CAUSE IRRITATIN OF THE NOSE,THROAT AND POSSIBLE ASPHYXIATION.INGEST:IRRITANT.MAY CAUSE LUNG DAMAGE IF VOMITED AFTER SWALLOWING.CHRONIC:THIS PRODUCT CONTAINS BENZE NE WHICH AHS BEEN ASSOCIATED WITH LEUKEMIA. FIRST AID: EYES:FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPENED.GET MEDICAL ATTENTION.SKIN:REMOVE CONTAMINATED CLOTHING;FLUSH WITH WATER.GET MEDICAL ATTENTION.INGEST:GET PROMPT QUALIF IED MEDICAL ATTENTION.IF VOMITING OCCURS KEEP HEAD LOWER THAN HIPS.INHAL:REMOVE TO FREAH AIR.GIVE OXYGEN OR ARTIFICIAL RESPIRATION IF NEEDED.GET MEDICAL ATTENTION.

This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever expressly or implied warrants, states, or intends said information to have any application, use or viability by or to any person or persons outside the Department of Defense nor any person or persons contracting with any instrumentality of the United States of America and disclaims all liability for such use. Any person utilizing this instruction who is not a military or civilian employee of the United States of America should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation regardless of similarity to a corresponding Department of Defense or other government situation.

HMIS Sponsored by
DEFENSE SUPPLY CENTER RICHMOND

U.S. Department of Labor
Occupational Safety & Health Administration
www.osha.gov
Search GO Advanced Search



[Text Only]

Regulations (Standards - 29 CFR)

Substance safety data sheet, Benzene - 1910.1028 App A

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1910
• **Part Title:**	Occupational Safety and Health Standards
• **Subpart:**	Z
• **Subpart Title:**	Toxic and Hazardous Substances
• **Standard Number:**	1910.1028 App A
• **Title:**	Substance safety data sheet, Benzene

I. Substance Identification

A. Substance: Benzene.

B. Permissible Exposure: Except as to the use of gasoline, motor fuels and other fuels subsequent to discharge from bulk terminals and other exemptions specified in 1910.1028(a)(2):

1. Airborne: The maximum time-weighted average (TWA) exposure limit is 1 part of benzene vapor per million parts of air (1 ppm) for an 8-hour workday and the maximum short-term exposure limit (STEL) is 5 ppm for any 15-minute period.

2. Dermal: Eye contact shall be prevented and skin contact with liquid benzene shall be limited.

C. Appearance and odor: Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide adequate warning of its hazard.

II. Health Hazard Data

A. Ways in which benzene affects your health. Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it.

B. Effects of overexposure. 1. Short-term (acute) overexposure: If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.

2. Long-term (chronic) exposure. Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to

leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.

III. Protective Clothing and Equipment

A. Respirators. Respirators are required for those operations in which engineering controls or work practice controls are not feasible to reduce exposure to the permissible level. However, where employers can document that benzene is present in the workplace less than 30 days a year, respirators may be used in lieu of engineering controls. If respirators are worn, they must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval, and cartridge or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. If you experience difficulty breathing while wearing a respirator, you may request a positive pressure respirator from your employer. You must be thoroughly trained to use the assigned respirator, and the training will be provided by your employer.

B. Protective Clothing. You must wear appropriate protective clothing (such as boots, gloves, sleeves, aprons, etc.) over any parts of your body that could be exposed to liquid benzene.

C. Eye and Face Protection. You must wear splash-proof safety goggles if it is possible that benzene may get into your eyes. In addition, you must wear a face shield if your face could be splashed with benzene liquid.

IV. Emergency and First Aid Procedures

A. Eye and face exposure. If benzene is splashed in your eyes, wash it out immediately with large amounts of water. If irritation persists or vision appears to be affected see a doctor as soon as possible.

B. Skin exposure. If benzene is spilled on your clothing or skin, remove the contaminated clothing and wash the exposed skin with large amounts of water and soap immediately. Wash contaminated clothing before you wear it again.

C. Breathing. If you or any other person breathes in large amounts of benzene, get the exposed person to fresh air at once. Apply artificial respiration if breathing has stopped. Call for medical assistance or a doctor as soon as possible. Never enter any vessel or confined space where the benzene concentration might be high without proper safety equipment and at least one other person present who will stay outside. A life line should be used.

D. Swallowing. If benzene has been swallowed and the patient is conscious, do not induce vomiting. Call for medical assistance or a doctor immediately.

V. Medical Requirements

If you are exposed to benzene at a concentration at or above 0.5 ppm as an 8-hour time-weighted average, or have been exposed at or above 10 ppm in the past while employed by your current employer, your employer is required to provide a medical examination and history and laboratory tests within 60 days of the effective date of this standard and annually thereafter. These tests shall be provided without cost to you. In addition, if you are accidentally exposed to benzene (either by ingestion, inhalation, or skin/eye contact) under

emergency conditions known or suspected to constitute toxic exposure to benzene, your employer is required to make special laboratory tests available to you.

VI. Observation of Monitoring

Your employer is required to perform measurements that are representative of your exposure to benzene and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear the protective clothing and equipment.

VII. Access to Records

You or your representative are entitled to see the records of measurements of your exposure to benzene upon written request to your employer. Your medical examination records can be furnished to yourself, your physician or designated representative upon request by you to your employer.

VIII. Precautions for Safe Use, Handling and Storage

Benzene liquid is highly flammable. It should be stored in tightly closed containers in a cool, well ventilated area. Benzene vapor may form explosive mixtures in air. All sources of ignition must be controlled. Use nonsparking tools when opening or closing benzene containers. Fire extinguishers, where provided, must be readily available. Know where they are located and how to operate them. Smoking is prohibited in areas where benzene is used or stored. Ask your supervisor where benzene is used in your area and for additional plant safety rules.

Next Standard (1910.1028 App B)

Regulations (Standards - 29 CFR) - Table of Contents

Back to Top www.osha.gov

Contact Us | Freedom of Information Act | Customer Survey
Privacy and Security Statement | Disclaimers

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210

U.S. Department of Labor
Occupational Safety & Health Administration
www.osha.gov
Search GO Advanced Search

[Text Only]

Regulations (Standards - 29 CFR)

Medical surveillance guidelines for Benzene - 1910.1028 App C

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1910
• **Part Title:**	Occupational Safety and Health Standards
• **Subpart:**	Z
• **Subpart Title:**	Toxic and Hazardous Substances
• **Standard Number:**	1910.1028 App C
• **Title:**	Medical surveillance guidelines for Benzene

I. Route of Entry

Inhalation; skin absorption.

II. Toxicology

Benzene is primarily an inhalation hazard. Systemic absorption may cause depression of the hematopoietic system, pancytopenia, aplastic anemia, and leukemia. Inhalation of high concentrations can affect central nervous system function. Aspiration of small amounts of liquid benzene immediately causes pulmonary edema and hemorrhage of pulmonary tissue. There is some absorption through the skin. Absorption may be more rapid in the case of abraded skin, and benzene may be more readily absorbed if it is present in a mixture or as a contaminant in solvents which are readily absorbed. The defatting action of benzene may produce primary irritation due to repeated or prolonged contact with the skin. High concentration are irritating to the eyes and the mucous membranes of the nose, and respiratory tract.

III. Signs and Symptoms

Direct skin contact with benzene may cause erythema. Repeated or prolonged contact may result in drying, scaling dermatitis, or development of secondary skin infections. In addition, there is benzene absorption through the skin. Local effects of benzene vapor or liquid on the eye are slight. Only at very high concentrations is there any smarting sensation in the eye. Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation, and/or giddiness, followed by a period of depression, drowsiness, or fatigue. A sensation of tightness in the chest accompanied by breathlessness may occur and ultimately the victim may lose consciousness. Tremors, convulsions and death may follow from respiratory paralysis or circulatory collapse in a few minutes to several hours following severe exposures.

The detrimental effect on the blood-forming system of prolonged exposure to small quantities of benzene vapor is of extreme importance. The hematopoietic system is the chief

target for benzene's toxic effects which are manifested by alterations in the levels of formed elements in the peripheral blood. These effects have occurred at concentrations of benzene which may not cause irritation of mucous membranes, or any unpleasant sensory effects. Early signs and symptoms of benzene morbidity are varied, often not readily noticed and non-specific. Subjective complaints of headache, dizziness, and loss of appetite may precede or follow clinical signs. Rapid pulse and low blood pressure, in addition to a physical appearance of anemia, may accompany a subjective complaint of shortness of breath and excessive tiredness. Bleeding from the nose, gums, or mucous membranes, and the development of purpuric spots (small bruises) may occur as the condition progresses. Clinical evidence of leukopenia, anemia, and thrombocytopenia, singly or in combination, has been frequently reported among the first signs.

Bone marrow may appear normal, aplastic, or hyperplastic, and may not, in all situations, correlate with peripheral blood forming tissues. Because of variations in the susceptibility to benzene morbidity, there is no "typical" blood picture. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased and identification or correlation with benzene exposure must be sought out in the occupational history.

IV. Treatment of Acute Toxic Effects

Remove from exposure immediately. Make sure you are adequately protected and do not risk being overcome by fumes. Give oxygen or artificial resuscitation if indicated. Flush eyes, wash skin if contaminated and remove all contaminated clothing. Symptoms of intoxication may persist following severe exposures. Recovery from mild exposures is usually rapid and complete.

V. Surveillance and Preventive Considerations

A. General

The principal effects of benzene exposure which form the basis for this regulation are pathological changes in the hematopoietic system, reflected by changes in the peripheral blood and manifesting clinically as pancytopenia, aplastic anemia, and leukemia. Consequently, the medical surveillance program is designed to observe, on a regular basis, blood indices for early signs of these effects, and although early signs of leukemia are not usually available, emerging diagnostic technology and innovative regimes make consistent surveillance for leukemia, as well as other hematopoietic effects, essential.

Initial examinations are to be provided within 60 days of the effective date of this standard, or at the time of initial assignment, and periodic examinations annually thereafter. There are special provisions for medical tests in the event of hematologic abnormalities or for emergency situations.

The blood values which require referral to a hematologist or internist are noted in the standard in paragraph (i)(5). The standard specifies that blood abnormalities that persist must be referred "unless the physician has good reason to believe such referral is unnecessary" (paragraph (i)(5)). Examples of conditions that could make a referral unnecessary despite abnormal blood limits are iron or folate deficiency, menorrhagia, or blood loss due to some unrelated medical abnormality.

Symptoms and signs of benzene toxicity can be non-specific. Only a detailed history and appropriate investigative procedures will enable a physician to rule out or confirm conditions that place the employee at increased risk. To assist the examining physician with regard to which laboratory tests are necessary and when to refer an employee to the specialist, OSHA has established the following guidelines.

B. Hematology Guidelines

A minimum battery of tests is to be performed by strictly standardized methods.

1. Red cell, white cell, platelet counts, white blood cell differential, hematacrit and red cell indices must be performed by an accredited laboratory. The normal ranges for the red cell and white cell counts are influenced by altitude, race, and sex, and therefore should be determined by the accredited laboratory in the specific area where the tests are performed.

Either a decline from an absolute normal or an individual's base line to a subnormal value or a rise to a supra-normal value, are indicative of potential toxicity, particularly if all blood parameters decline. The normal total white blood count is approximately 7,200/mm(3) plus or minus 3,000. For cigarette smokers the white count may be higher and the upper range may be 2,000 cells higher than normal for the laboratory. In addition, infection, allergies and some drugs may raise the white cell count. The normal platelet count is approximately 250,000 with a range of 140,000 to 400,000. Counts outside this range should be regarded as possible evidence of benzene toxicity.

Certain abnormalities found through routine screening are of greater significance in the benzene-exposed worker and require prompt consultation with a specialist, namely:

a. Thrombocytopenia.

b. A trend of decreasing white cell, red cell, or platelet indices in an individual over time is more worrisome than an isolated abnormal finding at one test time. The importance of trend highlights the need to compare an individual's test results to baseline and/or previous periodic tests.

c. A constellation or pattern of abnormalities in the different blood indices is of more significance than a single abnormality. A low white count not associated with any abnormalities in other cell indices may be a normal statistical variation, whereas if the low white count is accompanied by decreases in the platelet and/or red cell indices, such a pattern is more likely to be associated with benzene toxicity and merits thorough investigation.

Anemia, leukopenia, macrocytosis or an abnormal differential white blood cell count should alert the physician to further investigate and/or refer the patient if repeat tests confirm the abnormalities. If routine screening detects an abnormality, follow-up tests which may be helpful in establishing the etiology of the abnormality are the peripheral blood smear and the reticulocyte count.

The extreme range of normal for reticulocytes is 0.4 to 2.5 percent of the red cells, the usual range being 0.5 to 1.2 percent of the red cells, but the typical value is in the range of 0.8 to 1.0 percent. A decline in reticulocytes to levels of less than 0.4 percent is to be regarded as possible evidence (unless another specific cause is found) of benzene toxicity requiring

accelerated surveillance. An increase in reticulocyte levels to about 2.5 percent may also be consistent with (but is not as characteristic of) benzene toxicity.

2. An important diagnostic test is a careful examination of the peripheral blood smear. As with reticulocyte count the smear should be with fresh uncoagulated blood obtained from a needle tip following venipuncture or from a drop of earlobe blood (capillary blood). If necessary, the smear may, under certain limited conditions, be made from a blood sample anticoagulated with EDTA (but never with oxalate or heparin). When the smear is to be prepared from a specimen of venous blood which has been collected by a commercial Vacutainer type tube containing neutral EDTA, the smear should be made as soon as possible after the venesection. A delay of up to 12 hours is permissible between the drawing of the blood specimen into EDTA and the preparation of the smear if the blood is stored at refrigerator (not freezing) temperature.

3. The minimum mandatory observations to be made from the smear are:

a. The differential white blood cell count.

b. Description of abnormalities in the appearance of red cells.

c. Description of any abnormalities in the platelets.

d. A careful search must be made throughout of every blood smear for immature white cells such as band forms (in more than normal proportion, i.e., over 10 percent of the total differential count), any number of metamyelocytes, myelocytes or myeloblasts. Any nucleate or multinucleated red blood cells should be reported. Large "giant" platelets or fragments of megakaryocytes must be recognized.

An increase in the proportion of band forms among the neutrophilic granulocytes is an abnormality deserving special mention, for it may represent a change which should be considered as an early warning of benzene toxicity in the absence of other causative factors (most commonly infection). Likewise, the appearance of metamyelocytes, in the absence of another probable cause, is to be considered a possible indication of benzene-induced toxicity.

An upward trend in the number of basophils, which normally do not exceed about 2.0 percent of the total white cells, is to be regarded as possible evidence of benzene toxicity. A rise in the eosinophil count is less specific but also may be suspicious of toxicity if the rises above 6.0 percent of the total white count.

The normal range of monocytes is from 2.0 to 8.0 percent of the total white count with an average of about 5.0 percent. About 20 percent of individuals reported to have mild but persisting abnormalities caused by exposure to benzene show a persistent monocytosis. The findings of a monocyte count which persists at more than 10 to 12 percent of the normal white cell count (when the total count is normal) or persistence of an absolute monocyte count in excess of 800/mm(3) should be regarded as a possible sign of benzene-induced toxicity.

A less frequent but more serious indication of benzene toxicity is the finding in the peripheral blood of the so-called "pseudo" (or acquired) Pelger-Huet anomaly. In this anomaly many, or sometimes the majority, of the neutrophilic granulocytes possess two round nuclear segments

- less often one or three round segments - rather than three normally elongated segments. When this anomaly is not hereditary, it is often but not invariably predictive of subsequent leukemia. However, only about two percent of patients who ultimately develop acute myelogenous leukemia show the acquired Pelger-Huet anomaly. Other tests that can be administered to investigate blood abnormalities are discussed below; however, such procedures should be undertaken by the hematologist.

An uncommon sign, which cannot be detected from the smear, but can be elicited by a "sucrose water test" of peripheral blood, is transient paroxysmal nocturnal hemoglobinuria (PNH), which may first occur insidiously during a period of established aplastic anemia, and may be followed within one to a few years by the appearance of rapidly fatal acute myelogenous leukemia. Clinical detection of PNH, which occurs in only one or two percent of those destined to have acute myelogenous leukemia, may be difficult; if the "sucrose water test" is positive, the somewhat more definitive Ham test, also known as the acid-serum hemolysis test, may provide confirmation.

e. Individuals documented to have developed acute myelogenous leukemia years after initial exposure to benzene may have progressed through a preliminary phase of hematologic abnormality. In some instances pancytopenia (i.e., a lowering in the counts of all circulating blood cells of bone marrow origin, but not to the extent implied by the term "aplastic anemia") preceded leukemia for many years. Depression of a single blood cell type or platelets may represent a harbinger of aplasia or leukemia. The finding of two or more cytopenias, or pancytopenia in a benzene-exposed individual, must be regarded as highly suspicious of more advanced although still reversible, toxicity. "Pancytopenia" coupled with the appearance of immature cells (myelocytes, myeloblasts, erythroblasts, etc.), with abnormal cells (pseudo Pelger-Huet anomaly, atypical nuclear heterochromatin, etc.), or unexplained elevations of white blood cells must be regarded as evidence of benzene overexposure unless proved otherwise. Many severely aplastic patients manifested the ominous finding of 5-10 percent myeloblasts in the marrow, occasional myeloblasts and myelocytes in the blood and 20-30% monocytes. It is evident that isolated cytopenias, pancytopenias, and even aplastic anemias induced by benzene may be reversible and complete recovery has been reported on cessation of exposure. However, since any of these abnormalities is serious, the employee must immediately be removed from any possible exposure to benzene vapor. Certain tests may substantiate the employee's prospects for progression or regression. One such test would be an examination of the bone marrow, but the decision to perform a bone marrow aspiration or needle biopsy is made by the hematologist.

The findings of basophilic stippling in circulating red blood cells (usually found in 1 to 5% of red cells following marrow injury), and detection in the bone marrow of what are termed "ringed sideroblasts" must be taken seriously, as they have been noted in recent years to be premonitory signs of subsequent leukemia.

Recently peroxidase-staining of circulating or marrow neutrophil granulocytes, employing benzidine dihydrochloride, have revealed the disappearance of, or diminution in, peroxidase in a sizable proportion of the granulocytes, and this has been reported as an early sign of leukemia. However, relatively few patients have been studied to date. Granulocyte granules are normally strongly peroxidase positive. A steady decline in leukocyte alkaline phosphatase has also been reported as suggestive of early acute leukemia. Exposure to benzene may cause an early rise in serum iron, often but not always associated with a fall in the reticulocyte count. Thus, serial measurements of serum iron levels may provide a means of determining

whether or not there is a trend representing sustained suppression of erythropoiesis.

Measurement of serum iron, determination of peroxidase and of alkaline phosphatase activity in peripheral granulocytes can be performed in most pathology laboratories. Peroxidase and alkaline phosphatase staining are usually undertaken when the index of suspicion for leukemia is high.

Next Standard (1910.1028 App D)

Regulations (Standards - 29 CFR) - Table of Contents

Back to Top www.osha.gov

Contact Us | Freedom of Information Act | Customer Survey
Privacy and Security Statement | Disclaimers

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210

MSDS Safety Information

FSC: 9150 MSDS Date: 12/05/1990 MSDS Num: BRJPY
Submitter: N EN LIIN: 00N027003 Tech Review: 01/22/1993 Status CD: C
Product ID: ROTELLA OIL 50, 54005. MFN: 01
Article: N Kit Part: N

Responsible Party Cage: 54527
Name: SHELL OIL COMPANY
Box: 4320
City: HOUSTON State: TX Zip: 77210
Country: US
Info Phone Number: 713-241-4819;713-241-2252
Emergency Phone Number: 713-473-9461;800-424-9300(CHEMTREC)
Preparer's Name: J.C. WILLETT
Proprietary Ind: N Review Ind: N
Published: Y Special Project CD: N

Contractor Summary

Cage: 54527 Name: SHELL OIL COMPANY
Box: 2463
City: HOUSTON State: TX Zip: 77210
Country: US Phone: 800-231-6950

Ingredients

Cas: Code: X RTECS #: 1002892MA Code: M
Name: MINOR ADDITIVE
% Text: <1 Environmental Wt:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:
ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:
EPA Rpt Qty: DOT Rpt Qty:
Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999ZZ Code: M
Name: SPILL PROC: SALVAGE VESSELS. SOAK UP RESIDUE W/ABSORB SUCH AS CLAY, SAND, OR OTHER SUITABLE MATLS; DISPOSE OF (ING 13)
% Text: N/K Environmental Wt:
Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999ZZ Code: M

Name: ING 12: PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. SMALL SPILLS: TAKE UP W/ABSORB MATL & DISP OF (ING 14)

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999ZZ Code: M

Name: ING 13: PROPERLY. SPILLS ENTERING SURF WATERS/ANY WATER COURSES OR SEWERS ENTERING/LEADING TO SURFACE WATERS (ING 15)

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999ZZ Code: M

Name: ING 14: THAT CAUSE A SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER 800-424-8602.

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 64742-18-3 Code: M RTECS #: PY8032000 Code: M

Name: MINERAL OIL, PETROLEUM DISTILLATES, ACID-TREATED HEAVY NAPHTHENIC; (SOLVENT REFINED, HYDROTREATED, ACID TREATED (ING 2)

% Text: 40 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: Code: X RTECS #: 9999999ZZ Code: M

Name: ING 1: HEAVY NAPHTHENIC DISTILLATE)

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 64742-57-0 Code: M RTECS #: 1005536SR Code: M

Name: SOLVENT REFINED HYDROTREATED RESIDUAL OIL

% Text: 0-35 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: 64742-54-7 Code: M RTECS #: PY8035500 Code: M

Name: MINERAL OIL, PETRO DISTILLATES, HYDROTREATED (MILD) HEAVY PARAFFINIC;(SOLV REFINED, HYDROTREATED, HEAVY PARAFFINIC DIST)

% Text: 0-15 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: 64742-70-7 Code: M RTECS #: PY8045500 Code: M

Name: MINERAL OIL,PETROLEUM PARAFFIN OILS, CATALYTIC DEWAXED HEAVY; (SOLVENT REFINED, CATALYTIC DEWAXED HEAVY PARAFFINIC DIST)

% Text: 0-50 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: Code: X RTECS #: 1002891AC Code: M

Name: ADDITIVE CONTAINING ZINC DIALKYL DITHIOPHOSPHATE

% Text: 0-25 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 9999999ZZ Code: M

Name: ADDITIVE CONTAINING INGREDIENTS 7 - 9.

% Text: 0-15 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 68457-79-4 Code: M RTECS #: TD5550000 Code: M

Name: PHOSPHORODITHIOIC ACID, DIALKYL ESTER, ZINC SALT; (ZINC DIALKYL DITHIOPHOSPHATE)

% Text: 0.12 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: Code: X RTECS #: 1006873CA Code: M

Name: CALCIUM ALKYL DITHIOPHOSPHATE

% Text: 0.17 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: Code: X RTECS #: 1006875MG Code: M

Name: MAGNESIUM ALKARYL SULFONATE; (MAGNESIUM LONG-CHAIN ALKARYL SULFONATE)

% Text: 0.10 Environmental Wt:

Other REC Limits: N/K

OSHA PEL: NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Health Hazards Data

LD50 LC50 Mixture NONE SPECIFIED BY MANUFACTURER.

Route Of Entry Inds - Inhalation: YES Skin: NO Ingestion: YES

Carcinogenicity Inds - NTP: NO IARC: NO OSHA: NO

Health Hazards Acute And Chronic

EYES: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN MINIMALLY IRRIT TO EYES. SKIN: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN MILDLY IRRIT TO SKIN. PRLNGD/RPTD CONTACT MAY RSLT IN VARIOUS SKIN DISORDERS SUCH AS DERMATIT IS, FOLLICULITIS/OIL ACNE. INHAL: INHAL OF VAPOR (GENERATED AT(EFTS OF OVEREXP)

Explanation Of Carcinogenicity

NOT RELEVANT.

Signs And Symptions Of Overexposure

HLTH HAZ: HIGH TEMPERATURES ONLY) OR OIL MIST FROM THIS PROD MAY RESULT IN MILD IRRIT OF UPPER RESP TRACT. INGEST: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN SLIGHTLY TOXIC IF INGESTED. IARC HAS DETERMINED THERE IS SUFFICIENT EV IDENCE FOR CARCIN IN EXPERIMENTAL ANIMALS OF USED MOTOR OILS.

Medical Cond Aggravated By Exposure

PRE-EXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

First Aid

EYES: FLUSH W/WATER FOR AT LEAST 15 MINS WHILE HOLDING LIDS OPEN. GET MED ATTN. SKIN: REMOVE CONTAMD CLTHG & WIPE EXCESS OFF. WASH W/SOAP & WATER/WATERLESS HAND CLEANER FOLLOWED BY SOAP & WATER. IF IRRIT OCCURS, GET MED ATTN. INHAL: REMOVE VICTIM TO FRESH AIR & PROVIDE O2 IF BRTHG IS DFCLT. GET MED ATTN. INGEST: DO NOT INDUCE VOMIT. NO TREATMENT IS NEC UNLESS LGE QTYS ARE INGEST.(SUPP DATA)

Spill Release Procedures

MAY BURN ALTHO NOT READILY IGNIT. USE CAUTIOUS JUDGEMENT WHEN CLEANING UP LGE SPILLS. LGE SPILL: WEAR NIOSH/MSHA APPRVD RESP & PROT CLTHG AS APPROP.SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE & CONTAIN. REMOVE W/VACUUM TRUCKS/PUMP TO STO R (ING 12)

Neutralizing Agent

NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Methods

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS. DISPOSE OF I/A/W FEDERAL, STATE & LOCAL REGULATIONS (FP N).

Handling And Storage Precautions

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

Other Precautions

MINIMIZE SKIN CONTACT. WASH W/SOAP & WATER BEFOREEATING, DRINKING, SMOKING OR USING TOILET FACILITIES. LAUNDER CONTAMDCLOTHING BEFORE REUSE. PROPERLY DISPOSE OF CONTAMD LEATHER ARTICLES,INCLUDING SHOES THAT CANNOT BE DECONTAMINATED.

Fire and Explosion Hazard Information

Flash Point Method: PMCC

Flash Point: **Flash Point Text:** 415F,213C

Autoignition Temp: **Autoignition Temp Text:** N/A

Lower Limits: N/K **Upper Limits:** N/K

Extinguishing Media

USE WATER FOG, FOAM, DRY CHEM/CO2. DO NOT USE DIRECT STEAM OF WATER. PROD WILL FLOAT & CAN BE REIGNITED ON SURFACES.

Fire Fighting Procedures

WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N). MATERIAL WILL NOT BURN UNLESS PREHEATED. COOL FIRE EXPOSED CONTAINERS WITH WATER.

Unusual Fire/Explosion Hazard

NONE SPECIFIED BY MANUFACTURER.

Control Measures

Respiratory Protection

IF EXPOS MAY/DOES EXCEED OCCUP EXPOS LMTS USE A NIOSH/MSHA APPRVD RESP TO PREVENT OVEREXP. I/A/W 29CFR 1910.134 USE EITHER AN ATMOS SUPPLYING RESP/AIR-PURIFYING RESP FOR ORG VAPS & PARTICULATES.

Ventilation

NONE SPECIFIED BY MANUFACTURER.

Protective Gloves

NITRILE GLOVES.

Eye Protection

CHEMICAL WORKERS GOGGLES (FP N).

Other Protective Equipment

PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE SKIN CONTACT.

Work Hygienic Practices

HNDLG PROCS & SAFETY PRECS IN MSDS SHOULD BE FOLLOWED TO MINIMIZE EMPLOYEE'S EXPOSURE TO THE USED PRODUCT.

Supplemental Safety and Health

HAZ DECOMP: & GASES WILL EVOLVE WHEN MATL UNDERGOES PYROLYSIS/COMBUST. CO, HYDROGEN SULFIDE, SOX, NOX, POX & OTHER UNIDENTIFIED ORG CMPNDS MAY BE FORMED UPON COMBUST. FIRST AID PROC: GET MED ATTN. NOTE TO MD: IN GENL, EMESIS INDUCTION IS UN NEC IN HIGH VISCOSITY, LOW VOLATILITY PRODS,I.E., MOST OILS/GREASES.

Physical/Chemical Properties

HCC: V6 NRC/State LIC No:

Net Prop WT For Ammo:

Boiling Point: B.P. Text: N/K

Melt/Freeze Pt: M.P/F.P Text: 5F(POUR PT)

Decomp Temp: Decomp Text: N/K

Vapor Pres: N/K Vapor Density: N/K

Volatile Org Content %: Spec Gravity: 0.8916(H2O=1)

VOC Pounds/Gallon: PH: N/K

VOC Grams/Liter: Viscosity: N/P

Evaporation Rate & Reference: N/K

Solubility in Water: NEGLIGIBLE

Appearance and Odor: DARK AMBER OIL. SLIGHT HYDROCARBON ODOR.

Percent Volatiles by Volume: N/K Corrosion Rate: N/K

Reactivity Data

Stability Indicator: YES

Stability Condition To Avoid: AVOID HEAT, OPEN FLAMES.

Materials To Avoid: OXIDIZING MATERIALS.

Hazardous Decomposition Products: THERM DECOMP PRODS ARE HIGHLY DEPENDENT ON COMBUST CNDTNS. A COMPLEX MIX OF AIRBORNE SOLID, LIQ, PARTICULATES(SUPP DATA)

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization: NOT RELEVANT

Toxicological Information

Toxicological Information: N/P

Ecological Information

Ecological: N/P

MSDS Transport Information

Transport Information: N/P

Regulatory Information

Sara Title III Information: N/P

Federal Regulatory Information: N/P
State Regulatory Information: N/P

Other Information

Other Information: N/P

HMIS HAZCOM Label

Print Labels

Product ID: ROTELLA OIL 50, 54005.
Cage: 54527 **Assigned IND:** N
Company Name: SHELL OIL COMPANY
Street: **PO Box:** 2463
City: HOUSTON **State:** TX **Zipcode:** 77210
Country: US
Health Emergency Phone: 713-473-9461;800-424-9300(CHEMTREC)
Label Required IND: Y **Date Of Label Review:** 01/21/1993
Status Code: C **MFG Label NO:**
Label Date: 01/21/1993 **Year Procured:** N/K
Origination Code: G **Chronic Hazard IND:** Y
Eye Protection IND: YES **Skin Protection IND:** YES
Signal Word: CAUTION **Respiratory Protection IND:** YES
Health Hazard: Slight
Contact Hazard: Slight
Fire Hazard: Slight
Reactivity Hazard: None

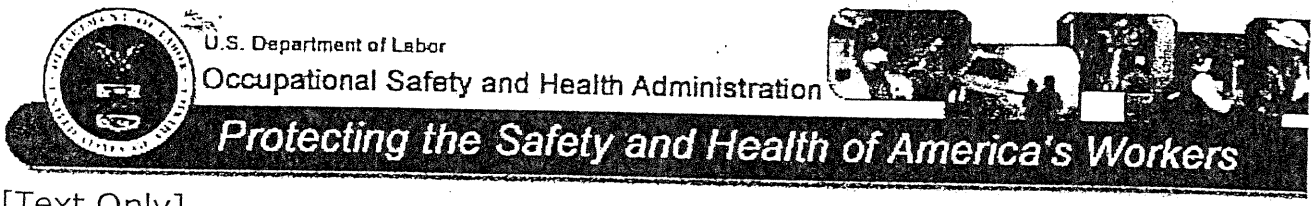
Hazard And Precautions

AVOID HEAT AND OPEN FLAMES. ACUTE: CONTACT WITH EYES AND SKIN MAY BE NO MORE THAN MINIMALLY IRRITATING. INHALATION OF VAPORS GENERATED AT HIGH TEMPERATURES OR OIL MIST MAY CAUSE MILD IRRITATION OF UPPER RESPIRATORY TRACT. INGESTION MAY BE C ONSIDERED NO MORE THAN SLIGHTLY TOXIC. CHRONIC: PROLONGED AND REPEATED SKIN CONTACT MAY RESULT IN VARIOUS SKIN DISORDERS SUCH AS DERMATITIS, FOLLICULITIS OR OIL ACNE. USED MOTOR OILS HAVE BEEN IMPLICATED AS BEING CAARCINOGENIC IN EXPERMIMEN TAL ANIMALS.

This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever expressly or implied warrants, states, or intends said information to have any application, use or viability by or to any person or persons outside the Department of Defense nor any person or persons contracting with any instrumentality of the United States of America and disclaims all liability for such use. Any person utilizing this instruction who is not a military or civilian employee of the United States of America should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation regardless of similarity to a corresponding Department of Defense or other government situation.

HMIS Sponsored by
DEFENSE SUPPLY CENTER RICHMOND

LOTO



[Text Only]

Regulations (Standards - 29 CFR)
The control of hazardous energy (lockout/tagou
1910.147

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1910
• **Part Title:**	Occupational Safety and Health Standards
• **Subpart:**	J
• **Subpart Title:**	General Environmental Controls
• **Standard Number:**	1910.147
• **Title:**	The control of hazardous energy (lockout/tagou
• **Appendix:**	A

1910.147(a)

Scope, application and purpose -

1910.147(a)(1)

Scope

1910.147(a)(1)(i)

This standard covers the servicing and maintenance of machines and equipn the ***unexpected*** energization or start up of the machines or equipment, or stored energy could cause injury to employees. This standard establishes mi performance requirements for the control of such hazardous energy.

1910.147(a)(1)(ii)

This standard does not cover the following:

1910.147(a)(1)(ii)(A)

Construction, agriculture and maritime employment;

1910.147(a)(1)(ii)(B)

Installations under the exclusive control of electric utilities for the purpose o generation, transmission and distribution, including related equipment for communication or metering; and

1910.147(a)(1)(ii)(C)

Exposure to electrical hazards from work on, near, or with conductors or equ electric utilization installations, which is covered by Subpart S of this part; a

..1910.147(a)(1)(ii)(D)

1910.147(a)(1)(ii)(D)

Oil and gas well drilling and servicing.

1910.147(a)(2)

Application.

1910.147(a)(2)(i)

This standard applies to the control of energy during servicing and/or maint machines and equipment.

1910.147(a)(2)(ii)

Normal production operations are not covered by this standard (See Subpar Part). Servicing and/or maintenance which takes place during normal produ operations is covered by this standard only if:

1910.147(a)(2)(ii)(A)

An employee is required to remove or bypass a guard or other safety device

1910.147(a)(2)(ii)(B)

An employee is required to place any part of his or her body into an area on or piece of equipment where work is actually performed upon the material b processed (point of operation) or where an associated danger zone exists du machine operating cycle.

Note: ***Exception to paragraph (a)(2)(ii):*** Minor tool changes and adjustn other minor servicing activities, which take place during normal production c are not covered by this standard if they are routine, repetitive, and integral the equipment for production, provided that the work is performed using alt measures which provide effective protection (See Subpart O of this Part).

1910.147(a)(2)(iii)

This standard does not apply to the following:

..1910.147(a)(2)(iii)(A)

1910.147(a)(2)(iii)(A)

Work on cord and plug connected electric equipment for which exposure to t of unexpected energization or start up of the equipment is controlled by the of the equipment from the energy source and by the plug being under the e control of the employee performing the servicing or maintenance.

1910.147(a)(2)(iii)(B)

Hot tap operations involving transmission and distribution systems for subst as gas, steam, water or petroleum products when they are performed on pr pipelines, provided that the employer demonstrates that-

1910.147(a)(2)(iii)(B)(1)

continuity of service is essential;

1910.147(a)(2)(iii)(B)(2)

shutdown of the system is impractical; and

1910.147(a)(2)(iii)(B)(3)

documented procedures are followed, and special equipment is used which v proven effective protection for employees.

1910.147(a)(3)

Purpose.

1910.147(a)(3)(i)

This section requires employers to establish a program and utilize procedure appropriate lockout devices or tagout devices to energy isolating devices, ar otherwise disable machines or equipment to prevent unexpected energizatio or release of stored energy in order to prevent injury to employees.

1910.147(a)(3)(ii)

When other standards in this part require the use of lockout or tagout, they used and supplemented by the procedural and training requirements of this

1910.147(b)

Definitions applicable to this section.

Affected employee. An employee whose job requires him/her to operate o machine or equipment on which servicing or maintenance is being performe lockout or tagout, or whose job requires him/her to work in an area in whic servicing or maintenance is being performed.

Authorized employee. A person who locks out or tags out machines or eq order to perform servicing or maintenance on that machine or equipment. A employee becomes an authorized employee when that employee's duties inc performing servicing or maintenance covered under this section.

Capable of being locked out. An energy isolating device is capable of beir if it has a hasp or other means of attachment to which, or through which, a affixed, or it has a locking mechanism built into it. Other energy isolating de capable of being locked out, if lockout can be achieved without the need to c rebuild, or replace the energy isolating device or permanently alter its energ capability.

Energized. Connected to an energy source or containing residual or stored

1.6	.....	.....	.....	.....	.....	6-6	10-8
1.7	.....	.....	.....	.....	.....	7-0	11-8
1.8	.....	.....	.....	.....	.....	7-7	12-8
1.9	.....	.....	.....	.....	.....	8-1	13-9
2.0	2-5	2-9	3-0	3-10	5-3	8-9	14-11
2.1	2-6	2-10	3-2	4-0	5-5	9-4	.....
2.2	2-7	2-11	3-3	4-1	5-9	9-11	.....
2.3	2-8	3-0	3-4	4-3	6-1	10-6	.....
2.4	2-9	3-1	3-5	4-5	6-4	11-3	.....
2.5	2-9	3-2	3-6	4-6	6-8	.....	.....
2.6	2-10	3-3	3-8	4-8	7-1	.....	.....
2.7	2-11	3-4	3-9	4-10	7-5	.....	.....
2.8	3-0	3-5	3-10	4-11	7-9	.....	.....
2.9	3-1	3-6	3-11	5-1	8-2	.....	.....
3.0	3-2	3-7	4-0	5-3	8-6	.....	.....

Note 1: The distance specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has been supplied by the employer. Table R-6 applies otherwise.

Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.

Note 3: See Appendix B to this section for information on how the minimum approach distances listed in the tables were derived and on how to calculate revised minimum approach distances based on the control of transient overvoltages.

Table R-8. - AC Live-Line Work Minimum Approach Distance With Overvoltage Factor Phase-to-Phase Exposure

Maximum anticipated per-unit transient over voltage	Distance in feet-inches						
	Maximum phase-to-phase voltage in kilovolts						
	121	145	169	242	362	552	800
1.5	.....	.....	.....	.....	.....	7-4	12-1
1.6	.....	.....	.....	.....	.....	8-9	14-6
1.7	.....	.....	.....	.....	.....	10-2	17-2
1.8	.....	.....	.....	.....	.....	11-7	19-11
1.9	.....	.....	.....	.....	.....	13-2	22-11
2.0	3-7	4-1	4-8	6-1	8-7	14-10	26-0
2.1	3-7	4-2	4-9	6-3	8-10	15-7	.....
2.2	3-8	4-3	4-10	6-4	9-2	16-4	.....
2.3	3-9	4-4	4-11	6-6	9-6	17-2	.....
2.4	3-10	4-5	5-0	6-7	9-11	18-1	.....
2.5	3-11	4-6	5-2	6-9	10-4	.....	.....
2.6	4-0	4-7	5-3	6-11	10-9	.....	.....
2.7	4-1	4-8	5-4	7-0	11-2	.....	.....
2.8	4-1	4-9	5-5	7-2	11-7	.....	.....
2.9	4-2	4-10	5-6	7-4	12-1	.....	.....
3.0	4-3	4-11	5-8	7-6	12-6	.....	.....

Note 1: The distance specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been

determined by engineering analysis and has been supplied by the employer. Table R-6 applies otherwise.

Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.

Note 3: See Appendix B to this section for information on how the minimum approach distances listed in the tables were derived and on how to calculate revised minimum approach distances based on the control of transient overvoltages.

Table R-9. - DC Live-Line Work Minimum Approach Distance With Overvoltage Factor

Maximum anticipated per-unit transient overvoltage	Distance in feet-inches				
	Maximum line-to-ground voltage in kilovolts				
	250	400	500	600	750
1.5 or lower.....	3-8	5-3	6-9	8-7	11-10
1.6.....	3-10	5-7	7-4	9-5	13-1
1.7.....	4-1	6-0	7-11	10-3	14-4
1.8.....	4-3	6-5	8-7	11-2	15-9

Note 1: The distances specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has been supplied by the employer. However, if the transient overvoltage factor is not known, a factor of 1.8 shall be assumed.

Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.

Table R-10. - Altitude Correction Factor

Altitude				Correction factor	
ft	ft	m	m		
3000	10000	900	3000	1.00	1.20
4000	12000	1200	3600	1.02	1.25
5000	14000	1500	4200	1.05	1.30
6000	16000	1800	4800	1.08	1.35
7000	18000	2100	5400	1.11	1.39
8000	20000	2400	6000	1.14	1.44
9000		2700		1.17	

Note: If the work is performed at elevations greater than 3000 ft (900 m) above mean sea level, the minimum approach distance shall be determined by multiplying the distances in Table R-6 through Table R-9 by the correction factor corresponding to the altitude at which work is performed.

1910.269(m)

"Deenergizing lines and equipment for employee protection."

..1910.269(m)(1)

1910.269(m)(1)

"Application." Paragraph (m) of this section applies to the deenergizing of transmission and distribution lines and equipment for the purpose of protecting employees. Control of hazardous energy sources used in the generation of electric energy is covered in paragraph (d) of this section. Conductors and parts of electric equipment that have been deenergized under procedures other than those required by paragraph (d) or (m) of this section, as applicable, shall be treated as energized.

1910.269(m)(2)

"General."

1910.269(m)(2)(i)

If a system operator is in charge of the lines or equipment and their means of disconnection, all of the requirements of paragraph (m)(3) of this section shall be observed, in the order given.

1910.269(m)(2)(ii)

If no system operator is in charge of the lines or equipment and their means of disconnection, one employee in the crew shall be designated as being in charge of the clearance. All of the requirements of paragraph (m)(3) of this section apply, in the order given, except as provided in paragraph (m)(2)(iii) of this section. The employee in charge of the clearance shall take the place of the system operator, as necessary.

1910.269(m)(2)(iii)

If only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to and under the sole control of the employee in charge of the clearance, paragraphs (m)(3)(i), (m)(3)(iii), (m)(3)(iv), (m)(3)(viii), and (m)(3)(xii) of this section do not apply. Additionally, tags required by the remaining provisions of paragraph (m)(3) of this section need not be used.

..1910.269(m)(2)(iv)

1910.269(m)(2)(iv)

Any disconnecting means that are accessible to persons outside the employer's control (for example, the general public) shall be rendered inoperable while they are open for the purpose of protecting employees.

1910.269(m)(3)

"Deenergizing lines and equipment."

1910.269(m)(3)(i)

A designated employee shall make a request of the system operator to have the particular section of line or equipment deenergized. The designated employee becomes the employee in charge (as this term is used in paragraph (m)(3) of this section) and is responsible for the clearance.

1910.269(m)(3)(ii)

All switches, disconnectors, jumpers, taps, and other means through which known sources of electric energy may be supplied to the particular lines and equipment to be deenergized shall be opened. Such means shall be rendered inoperable, unless its design does not so permit, and tagged to indicate that employees are at work.

1910.269(m)(3)(iii)

Automatically and remotely controlled switches that could cause the opened disconnecting means to close shall also be tagged at the point of control. The automatic or remote control feature shall be rendered inoperable, unless its design does not so permit.

1910.269(m)(3)(iv)

Tags shall prohibit operation of the disconnecting means and shall indicate that employees are at work.

..1910.269(m)(3)(v)

1910.269(m)(3)(v)

After the applicable requirements in paragraphs (m)(3)(i) through (m)(3)(iv) of this section have been followed and the employee in charge of the work has been given a clearance by the system operator, the lines and equipment to be worked shall be tested to ensure that they are deenergized.

1910.269(m)(3)(vi)

Protective grounds shall be installed as required by paragraph (n) of this section.

1910.269(m)(3)(vii)

After the applicable requirements of paragraphs (m)(3)(i) through (m)(3)(vi) of this section have been followed, the lines and equipment involved may be worked as deenergized.

1910.269(m)(3)(viii)

If two or more independent crews will be working on the same lines or equipment, each crew shall independently comply with the requirements in paragraph (m)(3) of this section.

1910.269(m)(3)(ix)

To transfer the clearance, the employee in charge (or, if the employee in charge is forced to leave the worksite due to illness or other emergency, the employee's supervisor) shall inform the system operator; employees in the crew shall be informed of the transfer; and the new employee in charge shall be responsible for the clearance.

1910.269(m)(3)(x)

To release a clearance, the employee in charge shall:

1910.269(m)(3)(x)(A)

Notify employees under his or her direction that the clearance is to be released;

..1910.269(m)(3)(x)(B)

1910.269(m)(3)(x)(B)

Determine that all employees in the crew are clear of the lines and equipment;

1910.269(m)(3)(x)(C)

Determine that all protective grounds installed by the crew have been removed; and

1910.269(m)(3)(x)(D)

Report this information to the system operator and release the clearance.

1910.269(m)(3)(xi)

The person releasing a clearance shall be the same person that requested the clearance, unless responsibility has been transferred under paragraph (m)(3)(ix) of this section.

1910.269(m)(3)(xii)

Tags may not be removed unless the associated clearance has been released under paragraph (m)(3)(x) of this section.

1910.269(m)(3)(xiii)

Only after all protective grounds have been removed, after all crews working on the lines or equipment have released their clearances, after all employees are clear of the lines and equipment, and after all protective tags have been removed from a given point of disconnection, may action be initiated to reenergize the lines or equipment at that point of disconnection.

..1910.269(n)

1910.269(n)

"Grounding for the protection of employees."

1910.269(n)(1)

"Application." Paragraph (n) of this section applies to the grounding of transmission and distribution lines and equipment for the purpose of protecting employees. Paragraph (n)(4) of this section also applies to the protective grounding of other equipment as required elsewhere in this section.

1910.269(n)(2)

"General." For the employee to work lines or equipment as deenergized, the lines or equipment shall be deenergized under the provisions of paragraph (m) of this section and shall be grounded as specified in paragraphs (n)(3) through (n)(9) of this section. However, if the employer can demonstrate that installation of a ground is impracticable or that the conditions resulting from the installation of a ground would present greater hazards than working without grounds, the lines and equipment may be treated as deenergized provided all of the following conditions are met:

1910.269(n)(2)(i)

The lines and equipment have been deenergized under the provisions of paragraph (m) of this section.

1910.269(n)(2)(ii)

There is no possibility of contact with another energized source.

1910.269(n)(2)(iii)

The hazard of induced voltage is not present.

1910.269(n)(3)

"Equipotential zone." Temporary protective grounds shall be placed at such locations and arranged in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential.

..1910.269(n)(4)

1910.269(n)(4)

"Protective grounding equipment."

1910.269(n)(4)(i)

Protective grounding equipment shall be capable of conducting the maximum fault current that could flow at the point of grounding for the time necessary to clear the fault. This equipment shall have an ampacity greater than or equal to that of No. 2 AWG copper.

Note: Guidelines for protective grounding equipment are contained in American Society for Testing and Materials Standard Specifications for Temporary Grounding Systems to be Used on De-Energized Electric Power Lines and Equipment, ASTM F855-1990.

1910.269(n)(4)(ii)

Protective grounds shall have an impedance low enough to cause immediate operation of protective devices in case of accidental energizing of the lines or equipment.

1910.269(n)(5)

"Testing." Before any ground is installed, lines and equipment shall be tested and found absent of nominal voltage, unless a previously installed ground is present.

1910.269(n)(6)

"Order of connection." When a ground is to be attached to a line or to equipment, the ground-end connection shall be attached first, and then the other end shall be attached by means of a live-line tool.

1910.269(n)(7)

"Order of removal." When a ground is to be removed, the grounding device shall be removed from the line or equipment using a live-line tool before the ground-end connection is removed.

1910.269(n)(8)

"Additional precautions." When work is performed on a cable at a location remote from the cable terminal, the cable may not be grounded at the cable terminal if there is a possibility of hazardous transfer of potential should a fault occur.

..1910.269(n)(9)

1910.269(n)(9)

"Removal of grounds for test." Grounds may be removed temporarily during tests. During the test procedure, the employer shall ensure that each employee uses insulating equipment and is isolated from any hazards involved, and the employer shall institute any additional measures as may be necessary to protect each exposed employee in case the previously grounded lines and equipment become energized.

1910.269(o)

"Testing and test facilities."

1910.269(o)(1)

"Application." Paragraph (o) of this section provides for safe work practices for high-voltage and high-power testing performed in laboratories, shops, and substations, and in the field and

on electric transmission and distribution lines and equipment. It applies only to testing involving interim measurements utilizing high voltage, high power, or combinations of both, and not to testing involving continuous measurements as in routine metering, relaying, and normal line work.

Note: Routine inspection and maintenance measurements made by qualified employees are considered to be routine line work and are not included in the scope of paragraph (o) of this section, as long as the hazards related to the use of intrinsic high-voltage or high-power sources require only the normal precautions associated with routine operation and maintenance work required in the other paragraphs of this section. Two typical examples of such excluded test work procedures are "phasing-out" testing and testing for a "no-voltage" condition.

1910.269(o)(2)

"General requirements."

1910.269(o)(2)(i)

The employer shall establish and enforce work practices for the protection of each worker from the hazards of high-voltage or high-power testing at all test areas, temporary and permanent. Such work practices shall include, as a minimum, test area guarding, grounding, and the safe use of measuring and control circuits. A means providing for periodic safety checks of field test areas shall also be included. (See paragraph (o)(6) of this section.)

1910.269(o)(2)(ii)

Employees shall be trained in safe work practices upon their initial assignment to the test area, with periodic reviews and updates provided as required by paragraph (a)(2) of this section.

..1910.269(o)(3)

1910.269(o)(3)

"Guarding of test areas."

1910.269(o)(3)(i)

Permanent test areas shall be guarded by walls, fences, or barriers designed to keep employees out of the test areas.

1910.269(o)(3)(ii)

In field testing, or at a temporary test site where permanent fences and gates are not provided, one of the following means shall be used to prevent unauthorized employees from entering:

1910.269(o)(3)(ii)(A)

The test area shall be guarded by the use of distinctively colored safety tape that is supported

approximately waist high and to which safety signs are attached,

1910.269(o)(3)(ii)(B)

The test area shall be guarded by a barrier or barricade that limits access to the test area to a degree equivalent, physically and visually, to the barricade specified in paragraph (o)(3)(ii)(A) of this section, or

1910.269(o)(3)(ii)(C)

The test area shall be guarded by one or more test observers stationed so that the entire area can be monitored.

1910.269(o)(3)(iii)

The barriers required by paragraph (o)(3)(ii) of this section shall be removed when the protection they provide is no longer needed.

..1910.269(o)(3)(iv)

1910.269(o)(3)(iv)

Guarding shall be provided within test areas to control access to test equipment or to apparatus under test that may become energized as part of the testing by either direct or inductive coupling, in order to prevent accidental employee contact with energized parts.

1910.269(o)(4)

"Grounding practices."

1910.269(o)(4)(i)

The employer shall establish and implement safe grounding practices for the test facility.

1910.269(o)(4)(i)(A)

All conductive parts accessible to the test operator during the time the equipment is operating at high voltage shall be maintained at ground potential except for portions of the equipment that are isolated from the test operator by guarding.

1910.269(o)(4)(i)(B)

Wherever ungrounded terminals of test equipment or apparatus under test may be present, they shall be treated as energized until determined by tests to be deenergized.

1910.269(o)(4)(ii)

Visible grounds shall be applied, either automatically or manually with properly insulated tools, to the high-voltage circuits after they are deenergized and before work is performed on the circuit or item or apparatus under test. Common ground connections shall be solidly

connected to the test equipment and the apparatus under test.

..1910.269(o)(4)(iii)

1910.269(o)(4)(iii)

In high-power testing, an isolated ground-return conductor system shall be provided so that no intentional passage of current, with its attendant voltage rise, can occur in the ground grid or in the earth. However, an isolated ground-return conductor need not be provided if the employer can demonstrate that both the following conditions are met:

1910.269(o)(4)(iii)(A)

An isolated ground-return conductor cannot be provided due to the distance of the test site from the electric energy source, and

1910.269(o)(4)(iii)(B)

Employees are protected from any hazardous step and touch potentials that may develop during the test.

Note: See Appendix C to this section for information on measures that can be taken to protect employees from hazardous step and touch potentials.

1910.269(o)(4)(iv)

In tests in which grounding of test equipment by means of the equipment grounding conductor located in the equipment power cord cannot be used due to increased hazards to test personnel or the prevention of satisfactory measurements, a ground that the employer can demonstrate affords equivalent safety shall be provided, and the safety ground shall be clearly indicated in the test set-up.

1910.269(o)(4)(v)

When the test area is entered after equipment is deenergized, a ground shall be placed on the high-voltage terminal and any other exposed terminals.

1910.269(o)(4)(v)(A)

High capacitance equipment or apparatus shall be discharged through a resistor rated for the available energy.

1910.269(o)(4)(v)(B)

A direct ground shall be applied to the exposed terminals when the stored energy drops to a level at which it is safe to do so.

..1910.269(o)(4)(vi)

1910.269(o)(4)(vi)

If a test trailer or test vehicle is used in field testing, its chassis shall be grounded. Protection against hazardous touch potentials with respect to the vehicle, instrument panels, and other conductive parts accessible to employees shall be provided by bonding, insulation, or isolation.

1910.269(o)(5)

"Control and measuring circuits."

1910.269(o)(5)(i)

Control wiring, meter connections, test leads and cables may not be run from a test area unless they are contained in a grounded metallic sheath and terminated in a grounded metallic enclosure or unless other precautions are taken that the employer can demonstrate as ensuring equivalent safety.

1910.269(o)(5)(ii)

Meters and other instruments with accessible terminals or parts shall be isolated from test personnel to protect against hazards arising from such terminals and parts becoming energized during testing. If this isolation is provided by locating test equipment in metal compartments with viewing windows, interlocks shall be provided to interrupt the power supply if the compartment cover is opened.

1910.269(o)(5)(iii)

The routing and connections of temporary wiring shall be made secure against damage, accidental interruptions and other hazards. To the maximum extent possible, signal, control, ground, and power cables shall be kept separate.

..1910.269(o)(5)(iv)

1910.269(o)(5)(iv)

If employees will be present in the test area during testing, a test observer shall be present. The test observer shall be capable of implementing the immediate deenergizing of test circuits for safety purposes.

1910.269(o)(6)

"Safety check."

1910.269(o)(6)(i)

Safety practices governing employee work at temporary or field test areas shall provide for a routine check of such test areas for safety at the beginning of each series of tests.

1910.269(o)(6)(ii)

The test operator in charge shall conduct these routine safety checks before each series of

tests and shall verify at least the following conditions:

1910.269(o)(6)(ii)(A)

That barriers and guards are in workable condition and are properly placed to isolate hazardous areas;

1910.269(o)(6)(ii)(B)

That system test status signals, if used, are in operable condition;

1910.269(o)(6)(ii)(C)

That test power disconnects are clearly marked and readily available in an emergency;

1910.269(o)(6)(ii)(D)

That ground connections are clearly identifiable;

1910.269(o)(6)(ii)(E)

That personal protective equipment is provided and used as required by Subpart I of this Part and by this section; and

1910.269(o)(6)(ii)(F)

That signal, ground, and power cables are properly separated.

..1910.269(p)

1910.269(p)

"Mechanical equipment."

1910.269(p)(1)

"General requirements."

1910.269(p)(1)(i)

The critical safety components of mechanical elevating and rotating equipment shall receive a thorough visual inspection before use on each shift.

Note: Critical safety components of mechanical elevating and rotating equipment are components whose failure would result in a free fall or free rotation of the boom.

1910.269(p)(1)(ii)

No vehicular equipment having an obstructed view to the rear may be operated on off-

highway jobsites where any employee is exposed to the hazards created by the moving vehicle, unless:

1910.269(p)(1)(ii)(A)

The vehicle has a reverse signal alarm audible above the surrounding noise level, or

1910.269(p)(1)(ii)(B)

The vehicle is backed up only when a designated employee signals that it is safe to do so.

1910.269(p)(1)(iii)

The operator of an electric line truck may not leave his or her position at the controls while a load is suspended, unless the employer can demonstrate that no employee (including the operator) might be endangered.

1910.269(p)(1)(iv)

Rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler-type tractors, crawler-type loaders, and motor graders, with or without attachments, shall have roll-over protective structures that meet the requirements of Subpart W of Part 1926 of this chapter.

..1910.269(p)(2)

1910.269(p)(2)

"Outriggers."

1910.269(p)(2)(i)

Vehicular equipment, if provided with outriggers, shall be operated with the outriggers extended and firmly set as necessary for the stability of the specific configuration of the equipment. Outriggers may not be extended or retracted outside of clear view of the operator unless all employees are outside the range of possible equipment motion.

1910.269(p)(2)(ii)

If the work area or the terrain precludes the use of outriggers, the equipment may be operated only within its maximum load ratings for the particular configuration of the equipment without outriggers.

1910.269(p)(3)

"Applied loads." Mechanical equipment used to lift or move lines or other material shall be used within its maximum load rating and other design limitations for the conditions under which the work is being performed.

1910.269(p)(4)

"Operations near energized lines or equipment."

1910.269(p)(4)(i)

Mechanical equipment shall be operated so that the minimum approach distances of Table R-6 through Table R-10 are maintained from exposed energized lines and equipment. However, the insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement.

..1910.269(p)(4)(ii)

1910.269(p)(4)(ii)

A designated employee other than the equipment operator shall observe the approach distance to exposed lines and equipment and give timely warnings before the minimum approach distance required by paragraph (p)(4)(i) is reached, unless the employer can demonstrate that the operator can accurately determine that the minimum approach distance is being maintained.

1910.269(p)(4)(iii)

If, during operation of the mechanical equipment, the equipment could become energized, the operation shall also comply with at least one of paragraphs (p)(4)(iii)(A) through (p)(4)(iii)(C) of this section.

1910.269(p)(4)(iii)(A)

The energized lines exposed to contact shall be covered with insulating protective material that will withstand the type of contact that might be made during the operation.

1910.269(p)(4)(iii)(B)

The equipment shall be insulated for the voltage involved. The equipment shall be positioned so that its uninsulated portions cannot approach the lines or equipment any closer than the minimum approach distances specified in Table R-6 through Table R-10.

1910.269(p)(4)(iii)(C)

Each employee shall be protected from hazards that might arise from equipment contact with the energized lines. The measures used shall ensure that employees will not be exposed to hazardous differences in potential. Unless the employer can demonstrate that the methods in use protect each employee from the hazards that might arise if the equipment contacts the energized line, the measures used shall include all of the following techniques:

..1910.269(p)(4)(iii)(C)(1)

1910.269(p)(4)(iii)(C)(1)

Using the best available ground to minimize the time the lines remain energized,

1910.269(p)(4)(iii)(C)(2)

Bonding equipment together to minimize potential differences,

1910.269(p)(4)(iii)(C)(3)

Providing ground mats to extend areas of equipotential, and

1910.269(p)(4)(iii)(C)(4)

Employing insulating protective equipment or barricades to guard against any remaining hazardous potential differences.

Note: Appendix C to this section contains information on hazardous step and touch potentials and on methods of protecting employees from hazards resulting from such potentials.

1910.269(q)

"Overhead lines." This paragraph provides additional requirements for work performed on or near overhead lines and equipment.

1910.269(q)(1)

"General."

1910.269(q)(1)(i)

Before elevated structures, such as poles or towers, are subjected to such stresses as climbing or the installation or removal of equipment may impose, the employer shall ascertain that the structures are capable of sustaining the additional or unbalanced stresses. If the pole or other structure cannot withstand the loads which will be imposed, it shall be braced or otherwise supported so as to prevent failure.

Note: Appendix D to this section contains test methods that can be used in ascertaining whether a wood pole is capable of sustaining the forces that would be imposed by an employee climbing the pole. This paragraph also requires the employer to ascertain that the pole can sustain all other forces that will be imposed by the work to be performed.

1910.269(q)(1)(ii)

When poles are set, moved, or removed near exposed energized overhead conductors, the pole may not contact the conductors.

..1910.269(q)(1)(iii)

1910.269(q)(1)(iii)

When a pole is set, moved, or removed near an exposed energized overhead conductor, the employer shall ensure that each employee wears electrical protective equipment or uses insulated devices when handling the pole and that no employee contacts the pole with

uninsulated parts of his or her body.

1910.269(q)(1)(iv)

To protect employees from falling into holes into which poles are to be placed, the holes shall be attended by employees or physically guarded whenever anyone is working nearby.

1910.269(q)(2)

"Installing and removing overhead lines." The following provisions apply to the installation and removal of overhead conductors or cable.

1910.269(q)(2)(i)

The employer shall use the tension stringing method, barriers, or other equivalent measures to minimize the possibility that conductors and cables being installed or removed will contact energized power lines or equipment.

1910.269(q)(2)(ii)

The protective measures required by paragraph (p)(4)(iii) of this section for mechanical equipment shall also be provided for conductors, cables, and pulling and tensioning equipment when the conductor or cable is being installed or removed close enough to energized conductors that any of the following failures could energize the pulling or tensioning equipment or the wire or cable being installed or removed:

1910.269(q)(2)(ii)(A)

Failure of the pulling or tensioning equipment,

..1910.269(q)(2)(ii)(B)

1910.269(q)(2)(ii)(B)

Failure of the wire or cable being pulled, or

1910.269(q)(2)(ii)(C)

Failure of the previously installed lines or equipment.

1910.269(q)(2)(iii)

If the conductors being installed or removed cross over energized conductors in excess of 600 volts and if the design of the circuit-interrupting devices protecting the lines so permits, the automatic-reclosing feature of these devices shall be made inoperative.

1910.269(q)(2)(iv)

Before lines are installed parallel to existing energized lines, the employer shall make a determination of the approximate voltage to be induced in the new lines, or work shall

proceed on the assumption that the induced voltage is hazardous. Unless the employer can demonstrate that the lines being installed are not subject to the induction of a hazardous voltage or unless the lines are treated as energized, the following requirements also apply:

1910.269(q)(2)(iv)(A)

Each bare conductor shall be grounded in increments so that no point along the conductor is more than 2 miles (3.22 km) from a ground.

1910.269(q)(2)(iv)(B)

The grounds required in paragraph (q)(2)(iv)(A) of this section shall be left in place until the conductor installation is completed between dead ends.

..1910.269(q)(2)(iv)(C)

1910.269(q)(2)(iv)(C)

The grounds required in paragraph (q)(2)(iv)(A) of this section shall be removed as the last phase of aerial cleanup.

1910.269(q)(2)(iv)(D)

If employees are working on bare conductors, grounds shall also be installed at each location where these employees are working, and grounds shall be installed at all open dead-end or catch-off points or the next adjacent structure.

1910.269(q)(2)(iv)(E)

If two bare conductors are to be spliced, the conductors shall be bonded and grounded before being spliced.

1910.269(q)(2)(v)

Reel handling equipment, including pulling and tensioning devices, shall be in safe operating condition and shall be leveled and aligned.

1910.269(q)(2)(vi)

Load ratings of stringing lines, pulling lines, conductor grips, load-bearing hardware and accessories, rigging, and hoists may not be exceeded.

1910.269(q)(2)(vii)

Pulling lines and accessories shall be repaired or replaced when defective.

1910.269(q)(2)(viii)

Conductor grips may not be used on wire rope, unless the grip is specifically designed for this application.

..1910.269(q)(2)(ix)

1910.269(q)(2)(ix)

Reliable communications, through two-way radios or other equivalent means, shall be maintained between the reel tender and the pulling rig operator.

1910.269(q)(2)(x)

The pulling rig may only be operated when it is safe to do so.

Note: Examples of unsafe conditions include employees in locations prohibited by paragraph (q)(2)(xi) of this section, conductor and pulling line hang-ups, and slipping of the conductor grip.

1910.269(q)(2)(xi)

While the conductor or pulling line is being pulled (in motion) with a power-driven device, employees are not permitted directly under overhead operations or on the cross arm, except as necessary to guide the stringing sock or board over or through the stringing sheave.

1910.269(q)(3)

"Live-line bare-hand work." In addition to other applicable provisions contained in this section, the following requirements apply to live-line bare-hand work:

1910.269(q)(3)(i)

Before using or supervising the use of the live-line bare-hand technique on energized circuits, employees shall be trained in the technique and in the safety requirements of paragraph (q)(3) of this section. Employees shall receive refresher training as required by paragraph (a)(2) of this section.

1910.269(q)(3)(ii)

Before any employee uses the live-line bare-hand technique on energized high-voltage conductors or parts, the following information shall be ascertained:

..1910.269(q)(3)(ii)(A)

1910.269(q)(3)(ii)(A)

The nominal voltage rating of the circuit on which the work is to be performed,

1910.269(q)(3)(ii)(B)

The minimum approach distances to ground of lines and other energized parts on which work is to be performed, and

1910.269(q)(3)(ii)(C)

The voltage limitations of equipment to be used.

1910.269(q)(3)(iii)

The insulated equipment, insulated tools, and aerial devices and platforms used shall be designed, tested, and intended for live-line bare-hand work. Tools and equipment shall be kept clean and dry while they are in use.

1910.269(q)(3)(iv)

The automatic-reclosing feature of circuit-interrupting devices protecting the lines shall be made inoperative, if the design of the devices permits.

1910.269(q)(3)(v)

Work may not be performed when adverse weather conditions would make the work hazardous even after the work practices required by this section are employed. Additionally, work may not be performed when winds reduce the phase-to-phase or phase-to-ground minimum approach distances at the work location below that specified in paragraph (q)(3)(xiii) of this section, unless the grounded objects and other lines and equipment are covered by insulating guards.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make live-line bare-hand work too hazardous to perform safely.

..1910.269(q)(3)(vi)

1910.269(q)(3)(vi)

A conductive bucket liner or other conductive device shall be provided for bonding the insulated aerial device to the energized line or equipment.

1910.269(q)(3)(vi)(A)

The employee shall be connected to the bucket liner or other conductive device by the use of conductive shoes, leg clips, or other means.

1910.269(q)(3)(vi)(B)

Where differences in potentials at the worksite pose a hazard to employees, electrostatic shielding designed for the voltage being worked shall be provided.

1910.269(q)(3)(vii)

Before the employee contacts the energized part, the conductive bucket liner or other conductive device shall be bonded to the energized conductor by means of a positive connection. This connection shall remain attached to the energized conductor until the work on the energized circuit is completed.

1910.269(q)(3)(viii)

Aerial lifts to be used for live-line bare-hand work shall have dual controls (lower and upper) as follows:

1910.269(q)(3)(viii)(A)

The upper controls shall be within easy reach of the employee in the bucket. On a two-bucket-type lift, access to the controls shall be within easy reach from either bucket.

..1910.269(q)(3)(viii)(B)

1910.269(q)(3)(viii)(B)

The lower set of controls shall be located near the base of the boom, and they shall be so designed that they can override operation of the equipment at any time.

1910.269(q)(3)(ix)

Lower (ground-level) lift controls may not be operated with an employee in the lift, except in case of emergency.

1910.269(q)(3)(x)

Before employees are elevated into the work position, all controls (ground level and bucket) shall be checked to determine that they are in proper working condition.

1910.269(q)(3)(xi)

Before the boom of an aerial lift is elevated, the body of the truck shall be grounded, or the body of the truck shall be barricaded and treated as energized.

1910.269(q)(3)(xii)

A boom-current test shall be made before work is started each day, each time during the day when higher voltage is encountered, and when changed conditions indicate a need for an additional test. This test shall consist of placing the bucket in contact with an energized source equal to the voltage to be encountered for a minimum of 3 minutes. The leakage current may not exceed 1 microampere per kilovolt of nominal phase-to-ground voltage. Work from the aerial lift shall be immediately suspended upon indication of a malfunction in the equipment.

..1910.269(q)(3)(xiii)

1910.269(q)(3)(xiii)

The minimum approach distances specified in Table R-6 through Table R-10 shall be maintained from all grounded objects and from lines and equipment at a potential different from that to which the live-line bare-hand equipment is bonded, unless such grounded objects and other lines and equipment are covered by insulating guards.

1910.269(q)(3)(xiv)

While an employee is approaching, leaving, or bonding to an energized circuit, the minimum approach distances in Table R-6 through Table R-10 shall be maintained between the employee and any grounded parts, including the lower boom and portions of the truck.

1910.269(q)(3)(xv)

While the bucket is positioned alongside an energized bushing or insulator string, the phase-to-ground minimum approach distances of Table R-6 through Table R-10 shall be maintained between all parts of the bucket and the grounded end of the bushing or insulator string or any other grounded surface.

1910.269(q)(3)(xvi)

Hand lines may not be used between the bucket and the boom or between the bucket and the ground. However, non-conductive-type hand lines may be used from conductor to ground if not supported from the bucket. Ropes used for live-line bare-hand work may not be used for other purposes.

1910.269(q)(3)(xvii)

Uninsulated equipment or material may not be passed between a pole or structure and an aerial lift while an employee working from the bucket is bonded to an energized part.

..1910.269(q)(3)(xviii)

1910.269(q)(3)(xviii)

A minimum approach distance table reflecting the minimum approach distances listed in Table R-6 through Table R-10 shall be printed on a plate of durable non-conductive material. This table shall be mounted so as to be visible to the operator of the boom.

1910.269(q)(3)(xix)

A non-conductive measuring device shall be readily accessible to assist employees in maintaining the required minimum approach distance.

1910.269(q)(4)

"Towers and structures." The following requirements apply to work performed on towers or other structures which support overhead lines.

1910.269(q)(4)(i)

The employer shall ensure that no employee is under a tower or structure while work is in progress, except where the employer can demonstrate that such a working position is necessary to assist employees working above.

1910.269(q)(4)(ii)

Tag lines or other similar devices shall be used to maintain control of tower sections being raised or positioned, unless the employer can demonstrate that the use of such devices would create a greater hazard.

1910.269(q)(4)(iii)

The loadline may not be detached from a member or section until the load is safely secured.

1910.269(q)(4)(iv)

Except during emergency restoration procedures, work shall be discontinued when adverse weather conditions would make the work hazardous in spite of the work practices required by this section.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make this work too hazardous to perform, except under emergency conditions.

..1910.269(r)

1910.269(r)

"Line-clearance tree trimming operations." This paragraph provides additional requirements for line-clearance tree-trimming operations and for equipment used in these operations.

1910.269(r)(1)

"Electrical hazards." This paragraph does not apply to qualified employees.

1910.269(r)(1)(i)

Before an employee climbs, enters, or works around any tree, a determination shall be made of the nominal voltage of electric power lines posing a hazard to employees. However, a determination of the maximum nominal voltage to which an employee will be exposed may be made instead, if all lines are considered as energized at this maximum voltage.

1910.269(r)(1)(ii)

There shall be a second line-clearance tree trimmer within normal (that is, unassisted) voice communication under any of the following conditions:

1910.269(r)(1)(ii)(A)

If a line-clearance tree trimmer is to approach more closely than 10 feet (305 cm) any conductor or electric apparatus energized at more than 750 volts or

1910.269(r)(1)(ii)(B)

If branches or limbs being removed are closer to lines energized at more than 750 volts than the distances listed in Table R-6, Table R-9, and Table R-10 or

1910.269(r)(1)(ii)(C)

If roping is necessary to remove branches or limbs from such conductors or apparatus.

..1910.269(r)(1)(iii)

1910.269(r)(1)(iii)

Line-clearance tree trimmers shall maintain the minimum approach distances from energized conductors given in Table R-6, Table R-9, and Table R-10.

1910.269(r)(1)(iv)

Branches that are contacting exposed energized conductors or equipment or that are within the distances specified in Table R-6, Table R-9, and Table R-10 may be removed only through the use of insulating equipment.

Note: A tool constructed of a material that the employer can demonstrate has insulating qualities meeting paragraph (j)(1) of this section is considered as insulated under this paragraph if the tool is clean and dry.

1910.269(r)(1)(v)

Ladders, platforms, and aerial devices may not be brought closer to an energized part than the distances listed in Table R-6, Table R-9, and Table R-10.

1910.269(r)(1)(vi)

Line-clearance tree-trimming work may not be performed when adverse weather conditions make the work hazardous in spite of the work practices required by this section. Each employee performing line-clearance tree trimming work in the aftermath of a storm or under similar emergency conditions shall be trained in the special hazards related to this type of work.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make line-clearance tree trimming work too hazardous to perform safely.

1910.269(r)(2)

"Brush chippers."

1910.269(r)(2)(i)

Brush chippers shall be equipped with a locking device in the ignition system.

1910.269(r)(2)(ii)

Access panels for maintenance and adjustment of the chipper blades and associated drive train shall be in place and secure during operation of the equipment.

A rope that is wet, that is contaminated to the extent that its insulating capacity is impaired, or that is otherwise not considered to be insulated for the voltage involved may not be used near exposed energized lines.

1910.269(r)(8)

"Fall protection." Each employee shall be tied in with a climbing rope and safety saddle when the employee is working above the ground in a tree, unless he or she is ascending into the tree.

..1910.269(s)

1910.269(s)

"Communication facilities."

1910.269(s)(1)

"Microwave transmission."

1910.269(s)(1)(i)

The employer shall ensure that no employee looks into an open waveguide or antenna that is connected to an energized microwave source.

1910.269(s)(1)(ii)

If the electromagnetic radiation level within an accessible area associated with microwave communications systems exceeds the radiation protection guide given in 1910.97(a)(2) of this Part, the area shall be posted with the warning symbol described in 1910.97(a)(3) of this Part. The lower half of the warning symbol shall include the following statements or ones that the employer can demonstrate are equivalent:

Radiation in this area may exceed hazard limitations and special precautions are required. Obtain specific instruction before entering.

1910.269(s)(1)(iii)

When an employee works in an area where the electromagnetic radiation could exceed the radiation protection guide, the employer shall institute measures that ensure that the employee's exposure is not greater than that permitted by that guide. Such measures may include administrative and engineering controls and personal protective equipment.

1910.269(s)(2)

"Power line carrier." Power line carrier work, including work on equipment used for coupling carrier current to power line conductors, shall be performed in accordance with the requirements of this section pertaining to work on energized lines.

1910.269(t)

"Underground electrical installations." This paragraph provides additional requirements for work on underground electrical installations.

..1910.269(t)(1)

1910.269(t)(1)

"Access." A ladder or other climbing device shall be used to enter and exit a manhole or subsurface vault exceeding 4 feet (122 cm) in depth. No employee may climb into or out of a manhole or vault by stepping on cables or hangers.

1910.269(t)(2)

"Lowering equipment into manholes." Equipment used to lower materials and tools into manholes or vaults shall be capable of supporting the weight to be lowered and shall be checked for defects before use. Before tools or material are lowered into the opening for a manhole or vault, each employee working in the manhole or vault shall be clear of the area directly under the opening.

1910.269(t)(3)

"Attendants for manholes."

1910.269(t)(3)(i)

While work is being performed in a manhole containing energized electric equipment, an employee with first aid and CPR training meeting paragraph (b)(1) of this section shall be available on the surface in the immediate vicinity to render emergency assistance.

1910.269(t)(3)(ii)

Occasionally, the employee on the surface may briefly enter a manhole to provide assistance, other than emergency.

Note 1: An attendant may also be required under paragraph (e)(7) of this section. One person may serve to fulfill both requirements. However, attendants required under paragraph (e)(7) of this section are not permitted to enter the manhole.

Note 2: Employees entering manholes containing unguarded, uninsulated energized lines or parts of electric equipment operating at 50 volts or more are required to be qualified under paragraph (l)(1) of this section.

1910.269(t)(3)(iii)

For the purpose of inspection, housekeeping, taking readings, or similar work, an employee working alone may enter, for brief periods of time, a manhole where energized cables or equipment are in service, if the employer can demonstrate that the employee will be protected from all electrical hazards.

..1910.269(t)(3)(iv)

U.S. Department of Labor
Occupational Safety & Health Administration
www.osha.gov
Search GO Advanced Search | A

[Text Only]

Regulations (Standards - 29 CFR)

Electric Power Generation, Transmission, and Distribution. - 1910.269

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1910
• **Part Title:**	Occupational Safety and Health Standards
• **Subpart:**	R
• **Subpart Title:**	Special Industries
• **Standard Number:**	1910.269
• **Title:**	Electric Power Generation, Transmission, and Distribution.
• **Appendix:**	A, B, C, D, E

1910.269(a)

"General."

1910.269(a)(1)

"Application."

1910.269(a)(1)(i)

This section covers the operation and maintenance of electric power generation, control, transformation, transmission, and distribution lines and equipment. These provisions apply to:

1910.269(a)(1)(i)(A)

Power generation, transmission, and distribution installations, including related equipment for the purpose of communication or metering, which are accessible only to qualified employees;

Note: The types of installations covered by this paragraph include the generation, transmission, and distribution installations of electric utilities, as well as equivalent installations of industrial establishments. Supplementary electric generating equipment that is used to supply a workplace for emergency, standby, or similar purposes only is covered under Subpart S of this Part. (See paragraph (a)(1)(ii)(B) of this section.)

1910.269(a)(1)(i)(B)

Other installations at an electric power generating station, as follows:

1910.269(a)(1)(i)(B)(1)

Fuel and ash handling and processing installations, such as coal conveyors,

1910.269(a)(1)(i)(B)(2)

Water and steam installations, such as penstocks, pipelines, and tanks, providing a source of energy for electric generators, and

1910.269(a)(1)(i)(B)(3)

Chlorine and hydrogen systems:

..1910.269(a)(1)(i)(C)

1910.269(a)(1)(i)(C)

Test sites where electrical testing involving temporary measurements associated with electric power generation, transmission, and distribution is performed in laboratories, in the field, in substations, and on lines, as opposed to metering, relaying, and routine line work;

1910.269(a)(1)(i)(D)

Work on or directly associated with the installations covered in paragraphs (a)(1)(i)(A) through (a)(1)(i)(C) of this section; and

1910.269(a)(1)(i)(E)

Line-clearance tree-trimming operations, as follows:

1910.269(a)(1)(i)(E)(1)

Entire 1910.269 of this Part, except paragraph (r)(1) of this section, applies to line-clearance tree-trimming operations performed by qualified employees (those who are knowledgeable in the construction and operation of electric power generation, transmission, or distribution equipment involved, along with the associated hazards).

1910.269(a)(1)(i)(E)(2)

Paragraphs (a)(2), (b), (c), (g), (k), (p), and (r) of this section apply to line-clearance tree-trimming operations performed by line-clearance tree trimmers who are not qualified employees.

1910.269(a)(1)(ii)

Notwithstanding paragraph (A)(1)(i) of this section, 1910.269 of this Part does not apply:

1910.269(a)(1)(ii)(A)

To construction work, as defined in 1910.12 of this Part; or

1910.269(a)(1)(ii)(B)

To electrical installations, electrical safety-related work practices, or electrical maintenance considerations covered by Subpart S of this Part.

Note 1: Work practices conforming to 1910.332 through 1910.335 of this Part are considered as complying with the electrical safety-related work practice requirements of this section identified in Table 1 of Appendix A-2 to this section, provided the work is being performed on a generation or distribution installation meeting 1910.303 through 1910.308 of this Part. This table also identifies provisions in this section that apply to work by qualified persons directly on or associated with installations of electric power generation, transmission, and distribution lines or equipment, regardless of compliance with 1910.332 through 1910.335 of this Part.

Note 2: Work practices performed by qualified persons and conforming to 1910.269 of this Part are considered as complying with 1910.333(c) and 1910.335 of this Part.

..1910.269(a)(1)(iii)

1910.269(a)(1)(iii)

This section applies in addition to all other applicable standards contained in this Part 1910. Specific references in this section to other sections of Part 1910 are provided for emphasis only.

1910.269(a)(2)

"Training."

1910.269(a)(2)(i)

Employees shall be trained in and familiar with the safety-related work practices, safety procedures, and other safety requirements in this section that pertain to their respective job assignments. Employees shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole top and manhole rescue), that are not specifically addressed by this section but that are related to their work and are necessary for their safety.

1910.269(a)(2)(ii)

Qualified employees shall also be trained and competent in:

1910.269(a)(2)(ii)(A)

The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,

1910.269(a)(2)(ii)(B)

The skills and techniques necessary to determine the nominal voltage of exposed live parts,

1910.269(a)(2)(ii)(C)

The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed, and

..1910.269(a)(2)(ii)(D)

1910.269(a)(2)(ii)(D)

The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment.

Note: For the purposes of this section, a person must have this training in order to be considered a qualified person.

1910.269(a)(2)(iii)

The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices required by this section.

1910.269(a)(2)(iv)

An employee shall receive additional training (or retraining) under any of the following conditions:

1910.269(a)(2)(iv)(A)

If the supervision and annual inspections required by paragraph (a)(2)(iii) of this section indicate that the employee is not complying with the safety-related work practices required by this section, or

1910.269(a)(2)(iv)(B)

If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use, or

1910.269(a)(2)(iv)(C)

If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Note: OSHA would consider tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

1910.269(a)(2)(v)

The training required by paragraph (a)(2) of this section shall be of the classroom or on-the-

job type.

..1910.269(a)(2)(vi)

1910.269(a)(2)(vi)

The training shall establish employee proficiency in the work practices required by this section and shall introduce the procedures necessary for compliance with this section.

1910.269(a)(2)(vii)

The employer shall certify that each employee has received the training required by paragraph (a)(2) of this section. This certification shall be made when the employee demonstrates proficiency in the work practices involved and shall be maintained for the duration of the employee's employment.

Note: Employment records that indicate that an employee has received the required training are an acceptable means of meeting this requirement.

1910.269(a)(3)

"Existing conditions." Existing conditions related to the safety of the work to be performed shall be determined before work on or near electric lines or equipment is started. Such conditions include, but are not limited to, the nominal voltages of lines and equipment, the maximum switching transient voltages, the presence of hazardous induced voltages, the presence and condition of protective grounds and equipment grounding conductors, the condition of poles, environmental conditions relative to safety, and the locations of circuits and equipment, including power and communication lines and fire protective signaling circuits.

1910.269(b)

"Medical services and first aid." The employer shall provide medical services and first aid as required in 1910.151 of this Part. In addition to the requirements of 1910.151 of this Part, the following requirements also apply:

..1910.269(b)(1)

1910.269(b)(1)

"Cardiopulmonary resuscitation and first aid training." When employees are performing work on or associated with exposed lines or equipment energized at 50 volts or more, persons trained in first aid including cardiopulmonary resuscitation (CPR) shall be available as follows:

1910.269(b)(1)(i)

For field work involving two or more employees at a work location, at least two trained persons shall be available. However, only one trained person need be available if all new employees are trained in first aid, including CPR, within 3 months of their hiring dates.

1910.269(b)(1)(ii)

For fixed work locations such as generating stations, the number of trained persons available shall be sufficient to ensure that each employee exposed to electric shock can be reached within 4 minutes by a trained person. However, where the existing number of employees is insufficient to meet this requirement (at a remote substation, for example), all employees at the work location shall be trained.

1910.269(b)(2)

"First aid supplies." First aid supplies required by 1910.151(b) of this Part shall be placed in weatherproof containers if the supplies could be exposed to the weather.

1910.269(b)(3)

"First aid kits." Each first aid kit shall be maintained, shall be readily available for use, and shall be inspected frequently enough to ensure that expended items are replaced but at least once per year.

..1910.269(c)

1910.269(c)

"Job briefing." The employer shall ensure that the employee in charge conducts a job briefing with the employees involved before they start each job. The briefing shall cover at least the following subjects: hazards associated with the job, work procedures involved, special precautions, energy source controls, and personal protective equipment requirements.

1910.269(c)(1)

"Number of briefings." If the work or operations to be performed during the work day or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of each day or shift. Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work.

1910.269(c)(2)

"Extent of briefing." A brief discussion is satisfactory if the work involved is routine and if the employee, by virtue of training and experience, can reasonably be expected to recognize and avoid the hazards involved in the job. A more extensive discussion shall be conducted:

1910.269(c)(2)(i)

If the work is complicated or particularly hazardous, or

1910.269(c)(2)(ii)

if the employee cannot be expected to recognize and avoid the hazards involved in the job.

Note: The briefing is always required to touch on all the subjects listed in the introductory

text to paragraph (c) of this section.

1910.269(c)(3)

"Working alone." An employee working alone need not conduct a job briefing. However, the employer shall ensure that the tasks to be performed are planned as if a briefing were required.

..1910.269(d)

1910.269(d)

"Hazardous energy control (lockout/tagout) procedures."

1910.269(d)(1)

"Application." The provisions of paragraph (d) of this section apply to the use of lockout/tagout procedures for the control of energy sources in installations for the purpose of electric power generation, including related equipment for communication or metering. Locking and tagging procedures for the deenergizing of electric energy sources which are used exclusively for purposes of transmission and distribution are addressed by paragraph (m) of this section.

Note 1: Installations in electric power generation facilities that are not an integral part of, or inextricably commingled with, power generation processes or equipment are covered under 1910.147 and Subpart S of this Part.

Note 2: Lockout and tagging procedures that comply with paragraphs (c) through (f) of 1910.147 of this Part will also be deemed to comply with paragraph of (d) this section if the procedures address the hazards covered by paragraph (d) of this section.

1910.269(d)(2)

"General."

1910.269(d)(2)(i)

The employer shall establish a program consisting of energy control procedures, employee training, and periodic inspections to ensure that, before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the machine or equipment is isolated from the energy source and rendered inoperative.

1910.269(d)(2)(ii)

The employer's energy control program under paragraph (d)(2) of this section shall meet the following requirements:

1910.269(d)(2)(ii)(A)

If an energy isolating device is not capable of being locked out, the employer's program shall use a tagout system.

1910.269(d)(2)(ii)(B)

If an energy isolating device is capable of being locked out, the employer's program shall use lockout, unless the employer can demonstrate that the use of a tagout system will provide full employee protection as follows:

..1910.269(d)(2)(ii)(B)(1)

1910.269(d)(2)(ii)(B)(1)

When a tagout device is used on an energy isolating device which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by the use of a lockout program.

1910.269(d)(2)(ii)(B)(2)

In demonstrating that a level of safety is achieved in the tagout program equivalent to the level of safety obtained by the use of a lockout program, the employer shall demonstrate full compliance with all tagout-related provisions of this standard together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energizing.

1910.269(d)(2)(ii)(C)

After November 1, 1994, whenever replacement or major repair, renovation, or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machines or equipment shall be designed to accept a lockout device.

1910.269(d)(2)(iii)

Procedures shall be developed, documented, and used for the control of potentially hazardous energy covered by paragraph (d) of this section.

..1910.269(d)(2)(iv)

1910.269(d)(2)(iv)

The procedure shall clearly and specifically outline the scope, purpose, responsibility, authorization, rules, and techniques to be applied to the control of hazardous energy, and the measures to enforce compliance including, but not limited to, the following:

1910.269(d)(2)(iv)(A)

A specific statement of the intended use of this procedure;

1910.269(d)(2)(iv)(B)

Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;

1910.269(d)(2)(iv)(C)

Specific procedural steps for the placement, removal, and transfer of lockout devices or tagout devices and the responsibility for them; and

1910.269(d)(2)(iv)(D)

Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

1910.269(d)(2)(v)

The employer shall conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the provisions of paragraph (d) of this section are being followed.

1910.269(d)(2)(v)(A)

The periodic inspection shall be performed by an authorized employee who is not using the energy control procedure being inspected.

..1910.269(d)(2)(v)(B)

1910.269(d)(2)(v)(B)

The periodic inspection shall be designed to identify and correct any deviations or inadequacies.

1910.269(d)(2)(v)(C)

If lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.

1910.269(d)(2)(v)(D)

Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (d)(2)(vii) of this section.

1910.269(d)(2)(v)(E)

The employer shall certify that the inspections required by paragraph (d)(2)(v) of this section have been accomplished. The certification shall identify the machine or equipment on which the energy control procedure was being used, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

Note: If normal work schedule and operation records demonstrate adequate inspection activity and contain the required information, no additional certification is required.

1910.269(d)(2)(vi)

The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of energy controls are acquired by employees. The training shall include the following:

..1910.269(d)(2)(vi)(A)

1910.269(d)(2)(vi)(A)

Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of energy available in the workplace, and in the methods and means necessary for energy isolation and control.

1910.269(d)(2)(vi)(B)

Each affected employee shall be instructed in the purpose and use of the energy control procedure.

1910.269(d)(2)(vi)(C)

All other employees whose work operations are or may be in an area where energy control procedures may be used shall be instructed about the procedures and about the prohibition relating to attempts to restart or reenergize machines or equipment that are locked out or tagged out.

1910.269(d)(2)(vii)

When tagout systems are used, employees shall also be trained in the following limitations of tags:

1910.269(d)(2)(vii)(A)

Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock.

1910.269(d)(2)(vii)(B)

When a tag is attached to an energy isolating means, it is not to be removed without

authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

..1910.269(d)(2)(vii)(C)

1910.269(d)(2)(vii)(C)

Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

1910.269(d)(2)(vii)(D)

Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

1910.269(d)(2)(vii)(E)

Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

1910.269(d)(2)(vii)(F)

Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

1910.269(d)(2)(viii)

Retraining shall be provided by the employer as follows:

1910.269(d)(2)(viii)(A)

Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard or whenever there is a change in the energy control procedures.

1910.269(d)(2)(viii)(B)

Retraining shall also be conducted whenever a periodic inspection under paragraph (d)(2)(v) of this section reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in an employee's knowledge or use of the energy control procedures.

..1910.269(d)(2)(viii)(C)

1910.269(d)(2)(viii)(C)

The retraining shall reestablish employee proficiency and shall introduce new or revised control methods and procedures, as necessary.

1910.269(d)(2)(ix)

The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

1910.269(d)(3)

"Protective materials and hardware."

1910.269(d)(3)(i)

Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by the employer for isolating, securing, or blocking of machines or equipment from energy sources.

1910.269(d)(3)(ii)

Lockout devices and tagout devices shall be singularly identified; shall be the only devices used for controlling energy; may not be used for other purposes; and shall meet the following requirements:

1910.269(d)(3)(ii)(A)

Lockout devices and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

..1910.269(d)(3)(ii)(A)(1)

1910.269(d)(3)(ii)(A)(1)

Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

1910.269(d)(3)(ii)(A)(2)

Tagout devices shall be so constructed as not to deteriorate when used in corrosive environments.

1910.269(d)(3)(ii)(B)

Lockout devices and tagout devices shall be standardized within the facility in at least one of the following criteria: color, shape, size. Additionally, in the case of tagout devices, print and format shall be standardized.

1910.269(d)(3)(ii)(C)

Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or metal cutting tools.

1910.269(d)(3)(ii)(D)

Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and shall have the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

1910.269(d)(3)(ii)(E)

Each lockout device or tagout device shall include provisions for the identification of the employee applying the device.

..1910.269(d)(3)(ii)(F)

1910.269(d)(3)(ii)(F)

Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate.

Note: For specific provisions covering accident prevention tags, see 1910.145 of this Part.

1910.269(d)(4)

"Energy isolation." Lockout and tagout device application and removal may only be performed by the authorized employees who are performing the servicing or maintenance.

1910.269(d)(5)

"Notification." Affected employees shall be notified by the employer or authorized employee of the application and removal of lockout or tagout devices. Notification shall be given before the controls are applied and after they are removed from the machine or equipment.

Note: See also paragraph (d)(7) of this section, which requires that the second notification take place before the machine or equipment is reenergized.

1910.269(d)(6)

"Lockout/tagout application." The established procedures for the application of energy control (the lockout or tagout procedures) shall include the following elements and actions, and these procedures shall be performed in the following sequence:

1910.269(d)(6)(i)

Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

..1910.269(d)(6)(ii)

1910.269(d)(6)(ii)

The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown shall be used to avoid any additional or increased hazards to employees as a result of the equipment stoppage.

1910.269(d)(6)(iii)

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from energy sources.

1910.269(d)(6)(iv)

Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.

1910.269(d)(6)(iv)(A)

Lockout devices shall be attached in a manner that will hold the energy isolating devices in a "safe" or "off" position.

1910.269(d)(6)(iv)(B)

Tagout devices shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.

1910.269(d)(6)(iv)(B)(1)

Where tagout devices are used with energy isolating devices designed with the capability of being locked out, the tag attachment shall be fastened at the same point at which the lock would have been attached.

1910.269(d)(6)(iv)(B)(2)

Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

..1910.269(d)(6)(v)

1910.269(d)(6)(v)

Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, or otherwise rendered safe.

1910.269(d)(6)(vi)

If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed or until the possibility of such accumulation no longer exists.

1910.269(d)(6)(vii)

Before starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and deenergizing of the machine or equipment have been accomplished. If normally energized parts will be exposed to contact by an employee while the machine or equipment is deenergized, a test shall be performed to ensure that these parts are deenergized.

1910.269(d)(7)

"Release from lockout/tagout." Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employees to ensure the following:

1910.269(d)(7)(i)

The work area shall be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.

1910.269(d)(7)(ii)

The work area shall be checked to ensure that all employees have been safely positioned or removed.

..1910.269(d)(7)(iii)

1910.269(d)(7)(iii)

After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees shall be notified that the lockout or tagout devices have been removed.

1910.269(d)(7)(iv)

Each lockout or tagout device shall be removed from each energy isolating device by the authorized employee who applied the lockout or tagout device. However, if that employee is not available to remove it, the device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented, and incorporated into the employer's energy control program. The employer shall demonstrate that the specific procedure provides a degree of safety equivalent to that provided by the removal of the device by the authorized employee who applied it. The specific procedure shall include at least the following elements:

1910.269(d)(7)(iv)(A)

Verification by the employer that the authorized employee who applied the device is not at

the facility;

1910.269(d)(7)(iv)(B)

Making all reasonable efforts to contact the authorized employee to inform him or her that his or her lockout or tagout device has been removed; and

1910.269(d)(7)(iv)(C)

Ensuring that the authorized employee has this knowledge before he or she resumes work at that facility.

..1910.269(d)(8)

1910.269(d)(8)

"Additional requirements."

1910.269(d)(8)(i)

If the lockout or tagout devices must be temporarily removed from energy isolating devices and the machine or equipment must be energized to test or position the machine, equipment, or component thereof, the following sequence of actions shall be followed:

1910.269(d)(8)(i)(A)

Clear the machine or equipment of tools and materials in accordance with paragraph (d)(7)(i) of this section;

1910.269(d)(8)(i)(B)

Remove employees from the machine or equipment area in accordance with paragraphs (d)(7)(ii) and (d)(7)(iii) of this section;

1910.269(d)(8)(i)(C)

Remove the lockout or tagout devices as specified in paragraph (d)(7)(iv) of this section;

1910.269(d)(8)(i)(D)

Energize and proceed with the testing or positioning; and

1910.269(d)(8)(i)(E)

Deenergize all systems and reapply energy control measures in accordance with paragraph (d)(6) of this section to continue the servicing or maintenance.

..1910.269(d)(8)(ii)

1910.269(d)(8)(ii)

When servicing or maintenance is performed by a crew, craft, department, or other group, they shall use a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout or tagout devices shall be used in accordance with the procedures required by paragraphs (d)(2)(iii) and (d)(2)(iv) of this section including, but not limited to, the following specific requirements:

1910.269(d)(8)(ii)(A)

Primary responsibility shall be vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock);

1910.269(d)(8)(ii)(B)

Provision shall be made for the authorized employee to ascertain the exposure status of all individual group members with regard to the lockout or tagout of the machine or equipment;

1910.269(d)(8)(ii)(C)

When more than one crew, craft, department, or other group is involved, assignment of overall job-associated lockout or tagout control responsibility shall be given to an authorized employee designated to coordinate affected work forces and ensure continuity of protection; and

1910.269(d)(8)(ii)(D)

Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

..1910.269(d)(8)(iii)

1910.269(d)(8)(iii)

Procedures shall be used during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and on-coming employees, to minimize their exposure to hazards from the unexpected energizing or start-up of the machine or equipment or from the release of stored energy.

1910.269(d)(8)(iv)

Whenever outside servicing personnel are to be engaged in activities covered by paragraph (d) of this section, the on-site employer and the outside employer shall inform each other of their respective lockout or tagout procedures, and each employer shall ensure that his or her personnel understand and comply with restrictions and prohibitions of the energy control

procedures being used.

1910.269(d)(8)(v)

If energy isolating devices are installed in a central location and are under the exclusive control of a system operator, the following requirements apply:

1910.269(d)(8)(v)(A)

The employer shall use a procedure that affords employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

1910.269(d)(8)(v)(B)

The system operator shall place and remove lockout and tagout devices in place of the authorized employee under paragraphs (d)(4), (d)(6)(iv), and (d)(7)(iv) of this section.

..1910.269(d)(8)(v)(C)

1910.269(d)(8)(v)(C)

Provisions shall be made to identify the authorized employee who is responsible for (that is, being protected by) the lockout or tagout device, to transfer responsibility for lockout and tagout devices, and to ensure that an authorized employee requesting removal or transfer of a lockout or tagout device is the one responsible for it before the device is removed or transferred.

1910.269(e)

"Enclosed spaces." This paragraph covers enclosed spaces that may be entered by employees. It does not apply to vented vaults if a determination is made that the ventilation system is operating to protect employees before they enter the space. This paragraph applies to routine entry into enclosed spaces in lieu of the permit-space entry requirements contained in paragraphs (d) through (k) of 1910.146 of this Part. If, after the precautions given in paragraphs (e) and (t) of this section are taken, the hazards remaining in the enclosed space endanger the life of an entrant or could interfere with escape from the space, then entry into the enclosed space shall meet the permit-space entry requirements of paragraphs (d) through (k) of 1910.146 of this Part.

Note: Entries into enclosed spaces conducted in accordance with the permit-space entry requirements of paragraphs (d) through (k) of 1910.146 of this Part are considered as complying with paragraph (e) of this section.

1910.269(e)(1)

"Safe work practices." The employer shall ensure the use of safe work practices for entry into and work in enclosed spaces and for rescue of employees from such spaces.

1910.269(e)(2)

"Training." Employees who enter enclosed spaces or who serve as attendants shall be trained in the hazards of enclosed space entry, in enclosed space entry procedures, and in enclosed space rescue procedures.

..1910.269(e)(3)

1910.269(e)(3)

"Rescue equipment." Employers shall provide equipment to ensure the prompt and safe rescue of employees from the enclosed space.

1910.269(e)(4)

"Evaluation of potential hazards." Before any entrance cover to an enclosed space is removed, the employer shall determine whether it is safe to do so by checking for the presence of any atmospheric pressure or temperature differences and by evaluating whether there might be a hazardous atmosphere in the space. Any conditions making it unsafe to remove the cover shall be eliminated before the cover is removed.

Note: The evaluation called for in this paragraph may take the form of a check of the conditions expected to be in the enclosed space. For example, the cover could be checked to see if it is hot and, if it is fastened in place, could be loosened gradually to release any residual pressure. A determination must also be made of whether conditions at the site could cause a hazardous atmosphere, such as an oxygen deficient or flammable atmosphere, to develop within the space.

1910.269(e)(5)

"Removal of covers." When covers are removed from enclosed spaces, the opening shall be promptly guarded by a railing, temporary cover, or other barrier intended to prevent an accidental fall through the opening and to protect employees working in the space from objects entering the space.

1910.269(e)(6)

"Hazardous atmosphere." Employees may not enter any enclosed space while it contains a hazardous atmosphere, unless the entry conforms to the generic permit-required confined spaces standard in 1910.146 of this Part.

Note: The term "entry" is defined in 1910.146(b) of this Part.

..1910.269(e)(7)

1910.269(e)(7)

"Attendants." While work is being performed in the enclosed space, a person with first aid training meeting paragraph (b) of this section shall be immediately available outside the enclosed space to render emergency assistance if there is reason to believe that a hazard may exist in the space or if a hazard exists because of traffic patterns in the area of the opening used for entry. That person is not precluded from performing other duties outside the

enclosed space if these duties do not distract the attendant from monitoring employees within the space.

Note: See paragraph (t)(3) of this section for additional requirements on attendants for work in manholes.

1910.269(e)(8)

"Calibration of test instruments." Test instruments used to monitor atmospheres in enclosed spaces shall be kept in calibration, with a minimum accuracy of + or - 10 percent.

1910.269(e)(9)

"Testing for oxygen deficiency." Before an employee enters an enclosed space, the internal atmosphere shall be tested for oxygen deficiency with a direct-reading meter or similar instrument, capable of collection and immediate analysis of data samples without the need for off-site evaluation. If continuous forced air ventilation is provided, testing is not required provided that the procedures used ensure that employees are not exposed to the hazards posed by oxygen deficiency.

1910.269(e)(10)

"Testing for flammable gases and vapors." Before an employee enters an enclosed space, the internal atmosphere shall be tested for flammable gases and vapors with a direct-reading meter or similar instrument capable of collection and immediate analysis of data samples without the need for off-site evaluation. This test shall be performed after the oxygen testing and ventilation required by paragraph (e)(9) of this section demonstrate that there is sufficient oxygen to ensure the accuracy of the test for flammability.

..1910.269(e)(11)

1910.269(e)(11)

"Ventilation and monitoring." If flammable gases or vapors are detected or if an oxygen deficiency is found, forced air ventilation shall be used to maintain oxygen at a safe level and to prevent a hazardous concentration of flammable gases and vapors from accumulating. A continuous monitoring program to ensure that no increase in flammable gas or vapor concentration occurs may be followed in lieu of ventilation, if flammable gases or vapors are detected at safe levels.

Note: See the definition of hazardous atmosphere for guidance in determining whether or not a given concentration of a substance is considered to be hazardous.

1910.269(e)(12)

"Specific ventilation requirements." If continuous forced air ventilation is used, it shall begin before entry is made and shall be maintained long enough to ensure that a safe atmosphere exists before employees are allowed to enter the work area. The forced air ventilation shall be so directed as to ventilate the immediate area where employees are present within the enclosed space and shall continue until all employees leave the enclosed space.

1910.269(e)(13)

"Air supply." The air supply for the continuous forced air ventilation shall be from a clean source and may not increase the hazards in the enclosed space.

1910.269(e)(14)

"Open flames." If open flames are used in enclosed spaces, a test for flammable gases and vapors shall be made immediately before the open flame device is used and at least once per hour while the device is used in the space. Testing shall be conducted more frequently if conditions present in the enclosed space indicate that once per hour is insufficient to detect hazardous accumulations of flammable gases or vapors.

Note: See the definition of hazardous atmosphere for guidance in determining whether or not a given concentration of a substance is considered to be hazardous.

..1910.269(f)

1910.269(f)

"Excavations." Excavation operations shall comply with Subpart P of Part 1926 of this chapter.

1910.269(g)

"Personal protective equipment."

1910.269(g)(1)

"General." Personal protective equipment shall meet the requirements of Subpart I of this Part.

1910.269(g)(2)

"Fall protection."

1910.269(g)(2)(i)

Personal fall arrest equipment shall meet the requirements of Subpart M of Part 1926 of this Chapter.

1910.269(g)(2)(ii)

Body belts and safety straps for work positioning shall meet the requirements of 1926.959 of this Chapter.

1910.269(g)(2)(iii)

Body belts, safety straps, lanyards, lifelines, and body harnesses shall be inspected before use each day to determine that the equipment is in safe working condition. Defective equipment

may not be used.

1910.269(g)(2)(iv)

Lifelines shall be protected against being cut or abraded.

..1910.269(g)(2)(v)

1910.269(g)(2)(v)

Fall arrest equipment, work positioning equipment, or travel restricting equipment shall be used by employees working at elevated locations more than 4 feet (1.2 m) above the ground on poles, towers, or similar structures if other fall protection has not been provided. Fall protection equipment is not required to be used by a qualified employee climbing or changing location on poles, towers, or similar structures, unless conditions, such as, but not limited to, ice, high winds, the design of the structure (for example, no provision for holding on with hands), or the presence of contaminants on the structure, could cause the employee to lose his or her grip or footing.

Note 1: This paragraph applies to structures that support overhead electric power generation, transmission, and distribution lines and equipment. It does not apply to portions of buildings, such as loading docks, to electric equipment, such as transformers and capacitors, nor to aerial lifts. Requirements for fall protection associated with walking and working surfaces are contained in Subpart D of this Part; requirements for fall protection associated with aerial lifts are contained in 1910.67 of this Part.

Note 2: Employees undergoing training are not considered "qualified employees" for the purposes of this provision. Unqualified employees (including trainees) are required to use fall protection any time they are more than 4 feet (1.2 m) above the ground.

1910.269(g)(2)(vi)

The following requirements apply to personal fall arrest systems:

1910.269(g)(2)(vi)(A)

When stopping or arresting a fall, personal fall arrest systems shall limit the maximum arresting force on an employee to 900 pounds (4 kN) if used with a body belt.

1910.269(g)(2)(vi)(B)

When stopping or arresting a fall, personal fall arrest systems shall limit the maximum arresting force on an employee to 1800 pounds (8 kN) if used with a body harness.

1910.269(g)(2)(vi)(C)

Personal fall arrest systems shall be rigged such that an employee can neither free fall more than 6 feet (1.8 m) nor contact any lower level.

1910.269(g)(2)(vii)

If vertical lifelines or droplines are used, not more than one employee may be attached to any one lifeline.

1910.269(g)(2)(viii)

Snaphooks may not be connected to loops made in webbing-type lanyards.

1910.269(g)(2)(ix)

Snaphooks may not be connected to each other.

..1910.269(h)

1910.269(h)

"Ladders, platforms, step bolts, and manhole steps."

1910.269(h)(1)

"General." Requirements for ladders contained in Subpart D of this Part apply, except as specifically noted in paragraph (h)(2) of this section.

1910.269(h)(2)

"Special ladders and platforms." Portable ladders and platforms used on structures or conductors in conjunction with overhead line work need not meet paragraphs (d)(2)(i) and (d)(2)(iii) of 1910.25 of this Part or paragraph (c)(3)(iii) of 1910.26 of this Part. However, these ladders and platforms shall meet the following requirements:

1910.269(h)(2)(i)

Ladders and platforms shall be secured to prevent their becoming accidentally dislodged.

1910.269(h)(2)(ii)

Ladders and platforms may not be loaded in excess of the working loads for which they are designed.

1910.269(h)(2)(iii)

Ladders and platforms may be used only in applications for which they were designed.

1910.269(h)(2)(iv)

In the configurations in which they are used, ladders and platforms shall be capable of supporting without failure at least 2.5 times the maximum intended load.

..1910.269(h)(3)

1910.269(h)(3)

"Conductive ladders." Portable metal ladders and other portable conductive ladders may not be used near exposed energized lines or equipment. However, in specialized high-voltage work, conductive ladders shall be used where the employer can demonstrate that nonconductive ladders would present a greater hazard than conductive ladders.

1910.269(i)

"Hand and portable power tools."

1910.269(i)(1)

"General." Paragraph (i)(2) of this section applies to electric equipment connected by cord and plug. Paragraph (i)(3) of this section applies to portable and vehicle-mounted generators used to supply cord-and plug-connected equipment. Paragraph (i)(4) of this section applies to hydraulic and pneumatic tools.

1910.269(i)(2)

"Cord- and plug-connected equipment."

1910.269(i)(2)(i)

Cord-and plug-connected equipment supplied by premises wiring is covered by Subpart S of this Part.

1910.269(i)(2)(ii)

Any cord- and plug-connected equipment supplied by other than premises wiring shall comply with one of the following in lieu of 1910.243(a)(5) of this Part:

1910.269(i)(2)(ii)(A)

It shall be equipped with a cord containing an equipment grounding conductor connected to the tool frame and to a means for grounding the other end (however, this option may not be used where the introduction of the ground into the work environment increases the hazard to an employee); or

..1910.269(i)(2)(ii)(B)

1910.269(i)(2)(ii)(B)

It shall be of the double-insulated type conforming to Subpart S of this Part; or

1910.269(i)(2)(ii)(C)

It shall be connected to the power supply through an isolating transformer with an ungrounded secondary.

1910.269(i)(3)

"Portable and vehicle-mounted generators." Portable and vehicle-mounted generators used to supply cord- and plug-connected equipment shall meet the following requirements:

1910.269(i)(3)(i)

The generator may only supply equipment located on the generator or the vehicle and cord- and plug-connected equipment through receptacles mounted on the generator or the vehicle.

1910.269(i)(3)(ii)

The non-current-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles shall be bonded to the generator frame.

1910.269(i)(3)(iii)

In the case of vehicle-mounted generators, the frame of the generator shall be bonded to the vehicle frame.

1910.269(i)(3)(iv)

Any neutral conductor shall be bonded to the generator frame.

1910.269(i)(4)

"Hydraulic and pneumatic tools."

1910.269(i)(4)(i)

Safe operating pressures for hydraulic and pneumatic tools, hoses, valves, pipes, filters, and fittings may not be exceeded.

Note: If any hazardous defects are present, no operating pressure would be safe, and the hydraulic or pneumatic equipment involved may not be used. In the absence of defects, the maximum rated operating pressure is the maximum safe pressure.

..1910.269(i)(4)(ii)

1910.269(i)(4)(ii)

A hydraulic or pneumatic tool used where it may contact exposed live parts shall be designed and maintained for such use.

1910.269(i)(4)(iii)

The hydraulic system supplying a hydraulic tool used where it may contact exposed live parts shall provide protection against loss of insulating value for the voltage involved due to the formation of a partial vacuum in the hydraulic line.

Note: Hydraulic lines without check valves having a separation of more than 35 feet (10.7 m) between the oil reservoir and the upper end of the hydraulic system promote the formation of a partial vacuum.

1910.269(i)(4)(iv)

A pneumatic tool used on energized electric lines or equipment or used where it may contact exposed live parts shall provide protection against the accumulation of moisture in the air supply.

1910.269(i)(4)(v)

Pressure shall be released before connections are broken, unless quick acting, self-closing connectors are used. Hoses may not be kinked.

1910.269(i)(4)(vi)

Employees may not use any part of their bodies to locate or attempt to stop a hydraulic leak.

1910.269(j)

"Live-line tools."

1910.269(j)(1)

"Design of tools." Live-line tool rods, tubes, and poles shall be designed and constructed to withstand the following minimum tests:

..1910.269(j)(1)(i)

1910.269(j)(1)(i)

100,000 volts per foot (3281 volts per centimeter) of length for 5 minutes if the tool is made of fiberglass-reinforced plastic (FRP), or

1910.269(j)(1)(ii)

75,000 volts per foot (2461 volts per centimeter) of length for 3 minutes if the tool is made of wood, or

1910.269(j)(1)(iii)

Other tests that the employer can demonstrate are equivalent.

Note: Live-line tools using rod and tube that meet ASTM F711-89, Standard Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live-Line Tools, conform to paragraph (j)(1)(i) of this section.

1910.269(j)(2)

"Condition of tools."

1910.269(j)(2)(i)

Each live-line tool shall be wiped clean and visually inspected for defects before use each day.

1910.269(j)(2)(ii)

If any defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is present after wiping, the tool shall be removed from service and examined and tested according to paragraph (j)(2)(iii) of this section before being returned to service.

1910.269(j)(2)(iii)

Live-line tools used for primary employee protection shall be removed from service every 2 years and whenever required under paragraph (j)(2)(ii) of this section for examination, cleaning, repair, and testing as follows:

1910.269(j)(2)(iii)(A)

Each tool shall be thoroughly examined for defects.

..1910.269(j)(2)(iii)(B)

1910.269(j)(2)(iii)(B)

If a defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is found, the tool shall be repaired and refinished or shall be permanently removed from service. If no such defect or contamination is found, the tool shall be cleaned and waxed.

1910.269(j)(2)(iii)(C)

The tool shall be tested in accordance with paragraphs (j)(2)(iii)(D) and (j)(2)(iii)(E) of this section under the following conditions:

1910.269(j)(2)(iii)(C)(1)

After the tool has been repaired or refinished; and

1910.269(j)(2)(iii)(C)(2)

After the examination if repair or refinishing is not performed, unless the tool is made of FRP rod or foam-filled FRP tube and the employer can demonstrate that the tool has no defects that could cause it to fail in use.

1910.269(j)(2)(iii)(D)

The test method used shall be designed to verify the tool's integrity along its entire working length and, if the tool is made of fiberglass-reinforced plastic, its integrity under wet conditions.

1910.269(j)(2)(iii)(E)

The voltage applied during the tests shall be as follows:

1910.269(j)(2)(iii)(E)(1)

75,000 volts per foot (2461 volts per centimeter) of length for 1 minute if the tool is made of fiberglass, or

1910.269(j)(2)(iii)(E)(2)

50,000 volts per foot (1640 volts per centimeter) of length for 1 minute if the tool is made of wood, or

1910.269(j)(2)(iii)(E)(3)

Other tests that the employer can demonstrate are equivalent.

Note: Guidelines for the examination, cleaning, repairing, and in-service testing of live-line tools are contained in the Institute of Electrical and Electronics Engineers Guide for In-Service Maintenance and Electrical Testing of Live-Line Tools, IEEE Std. 978-1984.

..1910.269(k)

1910.269(k)

"Materials handling and storage."

1910.269(k)(1)

"General." Material handling and storage shall conform to the requirements of Subpart N of this Part.

1910.269(k)(2)

"Materials storage near energized lines or equipment."

1910.269(k)(2)(i)

In areas not restricted to qualified persons only, materials or equipment may not be stored closer to energized lines or exposed energized parts of equipment than the following distances plus an amount providing for the maximum sag and side swing of all conductors and providing for the height and movement of material handling equipment:

1910.269(k)(2)(i)(A)

For lines and equipment energized at 50 kV or less, the distance is 10 feet (305 cm).

1910.269(k)(2)(i)(B)

For lines and equipment energized at more than 50 kV, the distance is 10 feet (305 cm) plus 4 inches (10 cm) for every 10 kV over 50 kV.

1910.269(k)(2)(ii)

In areas restricted to qualified employees, material may not be stored within the working space about energized lines or equipment.

Note: Requirements for the size of the working space are contained in paragraphs (u)(1) and (v)(3) of this section.

1910.269(l)

"Working on or near exposed energized parts." This paragraph applies to work on exposed live parts, or near enough to them, to expose the employee to any hazard they present.

..1910.269(l)(1)

1910.269(l)(1)

"General." Only qualified employees may work on or with exposed energized lines or parts of equipment. Only qualified employees may work in areas containing unguarded, uninsulated energized lines or parts of equipment operating at 50 volts or more. Electric lines and equipment shall be considered and treated as energized unless the provisions of paragraph (d) or paragraph (m) of this section have been followed.

1910.269(l)(1)(i)

Except as provided in paragraph (l)(1)(ii) of this section, at least two employees shall be present while the following types of work are being performed:

1910.269(l)(1)(i)(A)

Installation, removal, or repair of lines that are energized at more than 600 volts,

1910.269(l)(1)(i)(B)

Installation, removal, or repair of deenergized lines if an employee is exposed to contact with other parts energized at more than 600 volts,

1910.269(l)(1)(i)(C)

Installation, removal, or repair of equipment, such as transformers, capacitors, and regulators, if an employee is exposed to contact with parts energized at more than 600 volts,

1910.269(l)(1)(i)(D)

Work involving the use of mechanical equipment, other than insulated aerial lifts, near parts energized at more than 600 volts, and

1910.269(l)(1)(i)(E)

Other work that exposes an employee to electrical hazards greater than or equal to those posed by operations that are specifically listed in paragraphs (l)(1)(i)(A) through (l)(1)(i)(D) of this section.

..1910.269(l)(1)(ii)

1910.269(l)(1)(ii)

Paragraph (l)(1)(i) of this section does not apply to the following operations:

1910.269(l)(1)(ii)(A)

Routine switching of circuits, if the employer can demonstrate that conditions at the site allow this work to be performed safely,

1910.269(l)(1)(ii)(B)

Work performed with live-line tools if the employee is positioned so that he or she is neither within reach of nor otherwise exposed to contact with energized parts, and

1910.269(l)(1)(ii)(C)

Emergency repairs to the extent necessary to safeguard the general public.

1910.269(l)(2)

"Minimum approach distances." The employer shall ensure that no employee approaches or takes any conductive object closer to exposed energized parts than set forth in Table R-6 through Table R-10, unless:

1910.269(l)(2)(i)

The employee is insulated from the energized part (insulating gloves or insulating gloves and sleeves worn in accordance with paragraph (l)(3) of this section are considered insulation of the employee only with regard to the energized part upon which work is being performed), or

..1910.269(l)(2)(ii)

1910.269(l)(2)(ii)

The energized part is insulated from the employee and from any other conductive object at a different potential, or

1910.269(l)(2)(iii)

The employee is insulated from any other exposed conductive object, as during live-line bare-hand work.

Note: Paragraphs (u)(5)(i) and (v)(5)(i) and of this section contain requirements for the guarding and isolation of live parts. Parts of electric circuits that meet these two provisions are not considered as "exposed" unless a guard is removed or an employee enters the space intended to provide isolation from the live parts.

1910.269(l)(3)

"Type of insulation." If the employee is to be insulated from energized parts by the use of insulating gloves (under paragraph (l)(2)(i) of this section), insulating sleeves shall also be used. However, insulating sleeves need not be used under the following conditions:

1910.269(l)(3)(i)

If exposed energized parts on which work is not being performed are insulated from the employee and

1910.269(l)(3)(ii)

If such insulation is placed from a position not exposing the employee's upper arm to contact with other energized parts.

1910.269(l)(4)

"Working position." The employer shall ensure that each employee, to the extent that other safety-related conditions at the worksite permit, works in a position from which a slip or shock will not bring the employee's body into contact with exposed, uninsulated parts energized at a potential different from the employee.

1910.269(l)(5)

"Making connections." The employer shall ensure that connections are made as follows:

..1910.269(l)(5)(i)

1910.269(l)(5)(i)

In connecting deenergized equipment or lines to an energized circuit by means of a conducting wire or device, an employee shall first attach the wire to the deenergized part;

1910.269(l)(5)(ii)

When disconnecting equipment or lines from an energized circuit by means of a conducting wire or device, an employee shall remove the source end first; and

1910.269(l)(5)(iii)

When lines or equipment are connected to or disconnected from energized circuits, loose

conductors shall be kept away from exposed energized parts.

1910.269(l)(6)

"Apparel."

1910.269(l)(6)(i)

When work is performed within reaching distance of exposed energized parts of equipment, the employer shall ensure that each employee removes or renders nonconductive all exposed conductive articles, such as key or watch chains, rings, or wrist watches or bands, unless such articles do not increase the hazards associated with contact with the energized parts.

1910.269(l)(6)(ii)

The employer shall train each employee who is exposed to the hazards of flames or electric arcs in the hazards involved.

1910.269(l)(6)(iii)

The employer shall ensure that each employee who is exposed to the hazards of flames or electric arcs does not wear clothing that, when exposed to flames or electric arcs, could increase the extent of injury that would be sustained by the employee.

Note: Clothing made from the following types of fabrics, either alone or in blends, is prohibited by this paragraph, unless the employer can demonstrate that the fabric has been treated to withstand the conditions that may be encountered or that the clothing is worn in such a manner as to eliminate the hazard involved: acetate, nylon, polyester, rayon.

..1910.269(l)(7)

1910.269(l)(7)

"Fuse handling." When fuses must be installed or removed with one or both terminals energized at more than 300 volts or with exposed parts energized at more than 50 volts, the employer shall ensure that tools or gloves rated for the voltage are used. When expulsion-type fuses are installed with one or both terminals energized at more than 300 volts, the employer shall ensure that each employee wears eye protection meeting the requirements of Subpart I of this Part, uses a tool rated for the voltage, and is clear of the exhaust path of the fuse barrel.

1910.269(l)(8)

"Covered (noninsulated) conductors." The requirements of this section which pertain to the hazards of exposed live parts also apply when work is performed in the proximity of covered (noninsulated) wires.

1910.269(l)(9)

"Noncurrent-carrying metal parts." Noncurrent-carrying metal parts of equipment or devices,

such as transformer cases and circuit breaker housings, shall be treated as energized at the highest voltage to which they are exposed, unless the employer inspects the installation and determines that these parts are grounded before work is performed.

1910.269(l)(10)

"Opening circuits under load." Devices used to open circuits under load conditions shall be designed to interrupt the current involved.

Table R-6. - AC Live-Line Work Minimum Approach Distance

Nominal voltage in kilovolts phase to phase	Distance			
	Phase to ground exposure		Phase to phase exposure	
	(ft-in)	(m)	(ft-in)	(m)
0.05 to 1.0	(4)	(4)	(4)	(4)
1.1 to 15.0	2-1	0.64	2-2	0.66
15.1 to 36.0	2-4	0.72	2-7	0.77
36.1 to 46.0	2-7	0.77	2-10	0.85
46.1 to 72.5	3-0	0.90	3-6	1.05
72.6 to 121	3-2	0.95	4-3	1.29
138 to 145	3-7	1.09	4-11	1.50
161 to 169	4-0	1.22	5-8	1.71
230 to 242	5-3	1.59	7-6	2.27
345 to 362	8-6	2.59	12-6	3.80
500 to 550	11-3	3.42	18-1	5.50
765 to 800	14-11	4.53	26-0	7.91

Footnote(1) These distances take into consideration the highest switching surge an employee will be exposed to on any system with air as the insulating medium and the maximum voltages shown.
Footnote(2) The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.
Footnote(3) See Appendix B to this section for information on how the minimum approach distances listed in the tables were derived.
Footnote(4) Avoid contact.

Table R-7. - AC Live-Line Work Minimum Approach Distance With Overvoltage Factor Phase-to-Ground Exposure

Maximum anticipated per-unit transient over voltage	Distance in feet-inches						
	Maximum phase-to-phase voltage in kilovolts						
	121	145	169	242	362	552	800
1.5	.....	.....	.....	.....	.....	6-0	9-8

Energy isolating device. A mechanical device that physically prevents the or release of energy, including but not limited to the following: A manually o electrical circuit breaker; a disconnect switch; a manually operated switch b conductors of a circuit can be disconnected from all ungrounded supply conc in addition, no pole can be operated independently; a line valve; a block; an device used to block or isolate energy. Push buttons, selector switches and c circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance and services activitie involves welding on a piece of equipment (pipelines, vessels or tanks) under order to install connections or appurtenances. it is commonly used to replac sections of pipeline without the interruption of service for air, gas, water, ste petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, i accordance with an established procedure, ensuring that the energy isolatin the equipment being controlled cannot be operated until the lockout device i

Lockout device. A device that utilizes a positive means such as a lock, eith combination type, to hold an energy isolating device in the safe position and energizing of a machine or equipment. Included are blank flanges and bolte

Normal production operations. The utilization of a machine or equipment its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing setting up, adjusting, inspecting, modifying, and maintaining and/or servicin or equipment. These activities include lubrication, cleaning or unjamming of equipment and making adjustments or tool changes, where the employee m exposed to the ***unexpected*** energization or startup of the equipment or rel hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to per normal production operation.

Tagout. The placement of a tagout device on an energy isolating device, in with an established procedure, to indicate that the energy isolating device a equipment being controlled may not be operated until the tagout device is r

Tagout device. A prominent warning device, such as a tag and a means of which can be securely fastened to an energy isolating device in accordance established procedure, to indicate that the energy isolating device and the e being controlled may not be operated until the tagout device is removed.

..1910.147(c)

1910.147(c)

General -

1910.147(c)(1)

Energy control program. The employer shall establish a program consistir control procedures, employee training and periodic inspections to ensure tha employee performs any servicing or maintenance on a machine or equipmer unexpected energizing, startup or release of stored energy could occur and the machine or equipment shall be isolated from the energy source and renc inoperative.

1910.147(c)(2)

Lockout/tagout.

1910.147(c)(2)(i)

If an energy isolating device is not capable of being locked out, the employe control program under paragraph (c)(1) of this section shall utilize a tagout

1910.147(c)(2)(ii)

If an energy isolating device is capable of being locked out, the employer's e control program under paragraph (c)(1) of this section shall utilize lockout, employer can demonstrate that the utilization of a tagout system will provid employee protection as set forth in paragraph (c)(3) of this section.

1910.147(c)(2)(iii)

After January 2, 1990, whenever replacement or major repair, renovation o modification of a machine or equipment is performed, and whenever new m equipment are installed, energy isolating devices for such machine or equipr designed to accept a lockout device.

1910.147(c)(3)

Full employee protection.

1910.147(c)(3)(i)

When a tagout device is used on an energy isolating device which is capable locked out, the tagout device shall be attached at the same location that the device would have been attached, and the employer shall demonstrate that program will provide a level of safety equivalent to that obtained by using a program.

..1910.147(c)(3)(ii)

1910.147(c)(3)(ii)

In demonstrating that a level of safety is achieved in the tagout program wh equivalent to the level of safety obtained by using a lockout program, the er demonstrate full compliance with all tagout-related provisions of this standa with such additional elements as are necessary to provide the equivalent saf

from the use of a lockout device. Additional means to be considered as part demonstration of full employee protection shall include the implementation c safety measures such as the removal of an isolating circuit element, blockin controlling switch, opening of an extra disconnecting device, or the removal handle to reduce the likelihood of inadvertent energization.

1910.147(c)(4)

Energy control procedure.

1910.147(c)(4)(i)

Procedures shall be developed, documented and utilized for the control of pc hazardous energy when employees are engaged in the activities covered by

Note: ***Exception:*** The employer need not document the required procedure particular machine or equipment, when all of the following elements exist: (machine or equipment has no potential for stored or residual energy or reac of stored energy after shut down which could endanger employees; (2) the equipment has a single energy source which can be readily identified and isc the isolation and locking out of that energy source will completely deenergiz deactivate the machine or equipment; (4) the machine or equipment is isola that energy source and locked out during servicing or maintenance; (5) a sii device will achieve a locker-out condition; (6) the lockout device is under th control of the authorized employee performing the servicing or maintenance servicing or maintenance does not create hazards for other employees; and employer, in utilizing this exception, has had no accidents involving the une activation or reenergization of the machine or equipment during servicing or maintenance.

1910.147(c)(4)(ii)

The procedures shall clearly and specifically outline the scope, purpose, autl rules, and techniques to be utilized for the control of hazardous energy, and to enforce compliance including, but not limited to, the following:

1910.147(c)(4)(ii)(A)

A specific statement of the intended use of the procedure;

1910.147(c)(4)(ii)(B)

Specific procedural steps for shutting down, isolating, blocking and securing equipment to control hazardous energy;

1910.147(c)(4)(ii)(C)

Specific procedural steps for the placement, removal and transfer of lockout tagout devices and the responsibility for them; and

..1910.147(c)(4)(ii)(D)

1910.147(c)(4)(ii)(D)

Specific requirements for testing a machine or equipment to determine and effectiveness of lockout devices, tagout devices, and other energy control m

1910.147(c)(5)

Protective materials and hardware.

1910.147(c)(5)(i)

Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners hardware shall be provided by the employer for isolating, securing or blockir machines or equipment from energy sources.

1910.147(c)(5)(ii)

Lockout devices and tagout devices shall be singularly identified; shall be th devices(s) used for controlling energy; shall not be used for other purposes; meet the following requirements:

1910.147(c)(5)(ii)(A)

Durable.

1910.147(c)(5)(ii)(A)(1)

Lockout and tagout devices shall be capable of withstanding the environmen they are exposed for the maximum period of time that exposure is expected

1910.147(c)(5)(ii)(A)(2)

Tagout devices shall be constructed and printed so that exposure to weathe or wet and damp locations will not cause the tag to deteriorate or the messa tag to become illegible.

1910.147(c)(5)(ii)(A)(3)

Tags shall not deteriorate when used in corrosive environments such as area acid and alkali chemicals are handled and stored.

..1910.147(c)(5)(ii)(B)

1910.147(c)(5)(ii)(B)

Standardized. Lockout and tagout devices shall be standardized within the least one of the following criteria: Color; shape; or size; and additionally, in tagout devices, print and format shall be standardized.

1910.147(c)(5)(ii)(C)

Substantial -

1910.147(c)(5)(ii)(C)(1)

Lockout devices. Lockout devices shall be substantial enough to prevent re without the use of excessive force or unusual techniques, such as with the u cutters or other metal cutting tools.

1910.147(c)(5)(ii)(C)(2)

Tagout devices. Tagout devices, including their means of attachment, shal substantial enough to prevent inadvertent or accidental removal. Tagout dev attachment means shall be of a non-reusable type, attachable by hand, self- non-releasable with a minimum unlocking strength of no less than 50 pound the general design and basic characteristics of being at least equivalent to a all environment-tolerant nylon cable tie.

1910.147(c)(5)(ii)(D)

Identifiable. Lockout devices and tagout devices shall indicate the identity employee applying the device(s).

1910.147(c)(5)(iii)

Tagout devices shall warn against hazardous conditions if the machine or eq energized and shall include a legend such as the following: ***Do Not Start. D Open. Do Not Close. Do Not Energize. Do Not Operate.***

..1910.147(c)(6)

1910.147(c)(6)

Periodic inspection.

1910.147(c)(6)(i)

The employer shall conduct a periodic inspection of the energy control proce annually to ensure that the procedure and the requirements of this standard followed.

1910.147(c)(6)(i)(A)

The periodic inspection shall be performed by an authorized employee other ones(s) utilizing the energy control procedure being inspected.

1910.147(c)(6)(i)(B)

The periodic inspection shall be conducted to correct any deviations or inade identified.

1910.147(c)(6)(i)(C)

Where lockout is used for energy control, the periodic inspection shall includ between the inspector and each authorized employee, of that employee's re under the energy control procedure being inspected.

1910.147(c)(6)(i)(D)

Where tagout is used for energy control, the periodic inspection shall include between the inspector and each authorized and affected employee, of that e responsibilities under the energy control procedure being inspected, and the set forth in paragraph (c)(7)(ii) of this section.

..1910.147(c)(6)(ii)

1910.147(c)(6)(ii)

The employer shall certify that the periodic inspections have been performe certification shall identify the machine or equipment on which the energy co procedure was being utilized, the date of the inspection, the employees incl inspection, and the person performing the inspection.

1910.147(c)(7)

Training and communication.

1910.147(c)(7)(i)

The employer shall provide training to ensure that the purpose and function energy control program are understood by employees and that the knowled required for the safe application, usage, and removal of the energy controls by employees. The training shall include the following:

1910.147(c)(7)(i)(A)

Each authorized employee shall receive training in the recognition of applica hazardous energy sources, the type and magnitude of the energy available i workplace, and the methods and means necessary for energy isolation and

1910.147(c)(7)(i)(B)

Each affected employee shall be instructed in the purpose and use of the en procedure.

1910.147(c)(7)(i)(C)

All other employees whose work operations are or may be in an area where control procedures may be utilized, shall be instructed about the procedure, the prohibition relating to attempts to restart or reenergize machines or equ which are locked out or tagged out.

1910.147(c)(7)(ii)

When tagout systems are used, employees shall also be trained in the follow limitations of tags:

..1910.147(c)(7)(ii)(A)

1910.147(c)(7)(ii)(A)

Tags are essentially warning devices affixed to energy isolating devices, and provide the physical restraint on those devices that is provided by a lock.

1910.147(c)(7)(ii)(B)

When a tag is attached to an energy isolating means, it is not to be remove authorization of the authorized person responsible for it, and it is never to b

ignored, or otherwise defeated.

1910.147(c)(7)(ii)(C)

Tags must be legible and understandable by all authorized employees, affec employees, and all other employees whose work operations are or may be i order to be effective.

1910.147(c)(7)(ii)(D)

Tags and their means of attachment must be made of materials which will w environmental conditions encountered in the workplace.

1910.147(c)(7)(ii)(E)

Tags may evoke a false sense of security, and their meaning needs to be un part of the overall energy control program.

1910.147(c)(7)(ii)(F)

Tags must be securely attached to energy isolating devices so that they can inadvertently or accidentally detached during use.

1910.147(c)(7)(iii)

Employee retraining.

..1910.147(c)(7)(iii)(A)

1910.147(c)(7)(iii)(A)

Retraining shall be provided for all authorized and affected employees when a change in their job assignments, a change in machines, equipment or proc present a new hazard, or when there is a change in the energy control proce

1910.147(c)(7)(iii)(B)

Additional retraining shall also be conducted whenever a periodic inspection paragraph (c)(6) of this section reveals, or whenever the employer has reas that there are deviations from or inadequacies in the employee's knowledge the energy control procedures.

1910.147(c)(7)(iii)(C)

The retraining shall reestablish employee proficiency and introduce new or r control methods and procedures, as necessary.

1910.147(c)(7)(iv)

The employer shall certify that employee training has been accomplished an kept up to date. The certification shall contain each employee's name and da training.

1910.147(c)(8)

Energy isolation. Lockout or tagout shall be performed only by the authori

employees who are performing the servicing or maintenance.

1910.147(c)(9)

Notification of employees. Affected employees shall be notified by the em authorized employee of the application and removal of lockout devices or ta Notification shall be given before the controls are applied, and after they are from the machine or equipment.

..1910.147(d)

1910.147(d)

Application of control. The established procedures for the application of e (the lockout or tagout procedures) shall cover the following elements and ac shall be done in the following sequence:

1910.147(d)(1)

Preparation for shutdown. Before an authorized or affected employee tur machine or equipment, the authorized employee shall have knowledge of th magnitude of the energy, the hazards of the energy to be controlled, and th means to control the energy.

1910.147(d)(2)

Machine or equipment shutdown. The machine or equipment shall be tu shut down using the procedures established for the machine or equipment. shutdown must be utilized to avoid any additional or increased hazard(s) to as a result of the equipment stoppage.

1910.147(d)(3)

Machine or equipment isolation. All energy isolating devices that are nee control the energy to the machine or equipment shall be physically located a in such a manner as to isolate the machine or equipment from the energy s

1910.147(d)(4)

Lockout or tagout device application.

1910.147(d)(4)(i)

Lockout or tagout devices shall be affixed to each energy isolating device by employees.

..1910.147(d)(4)(ii)

1910.147(d)(4)(ii)

Lockout devices, where used, shall be affixed in a manner to that will hold th isolating devices in a "safe" or "off" position.

1910.147(d)(4)(iii)

Tagout devices, where used, shall be affixed in such a manner as will clearly that the operation or movement of energy isolating devices from the "safe" position is prohibited.

1910.147(d)(4)(iii)(A)

Where tagout devices are used with energy isolating devices designed with t of being locked, the tag attachment shall be fastened at the same point at w would have been attached.

1910.147(d)(4)(iii)(B)

Where a tag cannot be affixed directly to the energy isolating device, the ta located as close as safely possible to the device, in a position that will be im obvious to anyone attempting to operate the device.

1910.147(d)(5)

Stored energy.

1910.147(d)(5)(i)

Following the application of lockout or tagout devices to energy isolating dev potentially hazardous stored or residual energy shall be relieved, disconnect restrained, and otherwise rendered safe.

..1910.147(d)(5)(ii)

1910.147(d)(5)(ii)

If there is a possibility of reaccumulation of stored energy to a hazardous le verification of isolation shall be continued until the servicing or maintenance completed, or until the possibility of such accumulation no longer exists.

1910.147(d)(6)

Verification of isolation. Prior to starting work on machines or equipment been locked out or tagged out, the authorized employee shall verify that iso deenergization of the machine or equipment have been accomplished.

1910.147(e)

Release from lockout or tagout. Before lockout or tagout devices are ren energy is restored to the machine or equipment, procedures shall be followe actions taken by the authorized employee(s) to ensure the following:

1910.147(e)(1)

The machine or equipment. The work area shall be inspected to ensure th nonessential items have been removed and to ensure that machine or equip components are operationally intact.

1910.147(e)(2)

Employees.

1910.147(e)(2)(i)

The work area shall be checked to ensure that all employees have been safe or removed.

1910.147(e)(2)(ii)

After lockout or tagout devices have been removed and before a machine or is started, affected employees shall be notified that the lockout or tagout de been removed.

1910.147(e)(3)

Lockout or tagout devices removal. Each lockout or tagout device shall b from each energy isolating device by the employee who applied the device. ***to paragraph (e)(3):*** When the authorized employee who applied the lock device is not available to remove it, that device may be removed under the the employer, provided that specific procedures and training for such remov developed, documented and incorporated into the employer's energy contro The employer shall demonstrate that the specific procedure provides equiva the removal of the device by the authorized employee who applied it. The sp procedure shall include at least the following elements:

1910.147(e)(3)(i)

Verification by the employer that the authorized employee who applied the c at the facility:

1910.147(e)(3)(ii)

Making all reasonable efforts to contact the authorized employee to inform h his/her lockout or tagout device has been removed; and

1910.147(e)(3)(iii)

Ensuring that the authorized employee has this knowledge before he/she re: at that facility.

..1910.147(f)

1910.147(f)

Additional requirements.

1910.147(f)(1)

Testing or positioning of machines, equipment or components there situations in which lockout or tagout devices must be temporarily removed f energy isolating device and the machine or equipment energized to test or p machine, equipment or component thereof, the following sequence of action followed:

1910.147(f)(1)(i)

Clear the machine or equipment of tools and materials in accordance with pa (1) of this section;

1910.147(f)(1)(ii)

Remove employees from the machine or equipment area in accordance with (e)(2) of this section;

1910.147(f)(1)(iii)

Remove the lockout or tagout devices as specified in paragraph (e)(3) of thi

1910.147(f)(1)(iv)

Energize and proceed with testing or positioning;

1910.147(f)(1)(v)

Deenergize all systems and reapply energy control measures in accordance paragraph (d) of this section to continue the servicing and/or maintenance.

1910.147(f)(2)

Outside personnel (contractors, etc.).

1910.147(f)(2)(i)

Whenever outside servicing personnel are to be engaged in activities covere scope and application of this standard, the on-site employer and the outside shall inform each other of their respective lockout or tagout procedures.

..1910.147(f)(2)(ii)

1910.147(f)(2)(ii)

The on-site employer shall ensure that his/her employees understand and c the restrictions and prohibitions of the outside employer's energy control pr

1910.147(f)(3)

Group lockout or tagout.

1910.147(f)(3)(i)

When servicing and/or maintenance is performed by a crew, craft, departme group, they shall utilize a procedure which affords the employees a level of equivalent to that provided by the implementation of a personal lockout or t device.

1910.147(f)(3)(ii)

Group lockout or tagout devices shall be used in accordance with the proced required by paragraph (c)(4) of this section including, but not necessarily lin following specific requirements:

1910.147(f)(3)(ii)(A)

Primary responsibility is vested in an authorized employee for a set number employees working under the protection of a group lockout or tagout device operations lock);

1910.147(f)(3)(ii)(B)

Provision for the authorized employee to ascertain the exposure status of in group members with regard to the lockout or tagout of the machine or equi

1910.147(f)(3)(ii)(C)

When more than one crew, craft, department, etc. is involved, assignment c associated lockout or tagout control responsibility to an authorized employe to coordinate affected work forces and ensure continuity of protection; and

..1910.147(f)(3)(ii)(D)

1910.147(f)(3)(ii)(D)

Each authorized employee shall affix a personal lockout or tagout device to t lockout device, group lockbox, or comparable mechanism when he or she be and shall remove those devices when he or she stops working on the machi equipment being serviced or maintained.

1910.147(f)(4)

Shift or personnel changes. Specific procedures shall be utilized during sh personnel changes to ensure the continuity of lockout or tagout protection, i provision for the orderly transfer of lockout or tagout device protection betw going and oncoming employees, to minimize exposure to hazards from the u energization or start-up of the machine or equipment, or the release of stor

Note: The following appendix to §1910.147 services as a non-mandatory gu assist employers and employees in complying with the requirements of this well as to provide other helpful information. Nothing in the appendix adds to from any of the requirements of this section.

[54 FR 36687, Sept. 1, 1989, as amended at 54 FR 42498, Oct. 17, 1989; 5 38686, Sept. 20, 1990; 61 FR 5507, Feb. 13, 1996]

Next Standard (1910.147 App A)

Regulations (Standards - 29 CFR) - Table of Contents

Total time elapsed: .08 sec interval time: .08 sec

1910.269(t)(3)(iv)

Reliable communications, through two-way radios or other equivalent means, shall be maintained among all employees involved in the job.

1910.269(t)(4)

"Duct rods." If duct rods are used, they shall be installed in the direction presenting the least hazard to employees. An employee shall be stationed at the far end of the duct line being rodded to ensure that the required minimum approach distances are maintained.

1910.269(t)(5)

"Multiple cables." When multiple cables are present in a work area, the cable to be worked shall be identified by electrical means, unless its identity is obvious by reason of distinctive appearance or location or by other readily apparent means of identification. Cables other than the one being worked shall be protected from damage.

1910.269(t)(6)

"Moving cables." Energized cables that are to be moved shall be inspected for defects.

1910.269(t)(7)

"Defective cables." Where a cable in a manhole has one or more abnormalities that could lead to or be an indication of an impending fault, the defective cable shall be deenergized before any employee may work in the manhole, except when service load conditions and a lack of feasible alternatives require that the cable remain energized. In that case, employees may enter the manhole provided they are protected from the possible effects of a failure by shields or other devices that are capable of containing the adverse effects of a fault in the joint.

Note: Abnormalities such as oil or compound leaking from cable or joints, broken cable sheaths or joint sleeves, hot localized surface temperatures of cables or joints, or joints that are swollen beyond normal tolerance are presumed to lead to or be an indication of an impending fault.

..1910.269(t)(8)

1910.269(t)(8)

"Sheath continuity." When work is performed on buried cable or on cable in manholes, metallic sheath continuity shall be maintained or the cable sheath shall be treated as energized.

1910.269(u)

"Substations." This paragraph provides additional requirements for substations and for work performed in them.

1910.269(u)(1)

"Access and working space." Sufficient access and working space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment.

Note: Guidelines for the dimensions of access and working space about electric equipment in substations are contained in American National Standard - National Electrical Safety Code, ANSI C2-1987. Installations meeting the ANSI provisions comply with paragraph (u)(1) of this section. An installation that does not conform to this ANSI standard will, nonetheless, be considered as complying with paragraph (u)(1) of this section if the employer can demonstrate that the installation provides ready and safe access based on the following evidence:

[1] That the installation conforms to the edition of ANSI C2 that was in effect at the time the installation was made,

[2] That the configuration of the installation enables employees to maintain the minimum approach distances required by paragraph (l)(2) of this section while they are working on exposed, energized parts, and

[3] That the precautions taken when work is performed on the installation provide protection equivalent to the protection that would be provided by access and working space meeting ANSI C2-1987.

1910.269(u)(2)

"Draw-out-type circuit breakers." When draw-out-type circuit breakers are removed or inserted, the breaker shall be in the open position. The control circuit shall also be rendered inoperative, if the design of the equipment permits.

1910.269(u)(3)

"Substation fences." Conductive fences around substations shall be grounded. When a substation fence is expanded or a section is removed, fence grounding continuity shall be maintained, and bonding shall be used to prevent electrical discontinuity.

1910.269(u)(4)

"Guarding of rooms containing electric supply equipment."

1910.269(u)(4)(i)

Rooms and spaces in which electric supply lines or equipment are installed shall meet the requirements of paragraphs (u)(4)(ii) through (u)(4)(v) of this section under the following conditions:

..1910.269(u)(4)(i)(A)

1910.269(u)(4)(i)(A)

If exposed live parts operating at 50 to 150 volts to ground are located within 8 feet of the ground or other working surface inside the room or space,

1910.269(u)(4)(i)(B)

If live parts operating at 151 to 600 volts and located within 8 feet of the ground or other working surface inside the room or space are guarded only by location, as permitted under paragraph (u)(5)(i) of this section, or

1910.269(u)(4)(i)(C)

If live parts operating at more than 600 volts are located within the room or space, unless:

1910.269(u)(4)(i)(C)(1)

The live parts are enclosed within grounded, metal-enclosed equipment whose only openings are designed so that foreign objects inserted in these openings will be deflected from energized parts, or

1910.269(u)(4)(i)(C)(2)

The live parts are installed at a height above ground and any other working surface that provides protection at the voltage to which they are energized corresponding to the protection provided by an 8-foot height at 50 volts.

1910.269(u)(4)(ii)

The rooms and spaces shall be so enclosed within fences, screens, partitions, or walls as to minimize the possibility that unqualified persons will enter.

1910.269(u)(4)(iii)

Signs warning unqualified persons to keep out shall be displayed at entrances to the rooms and spaces.

..1910.269(u)(4)(iv)

1910.269(u)(4)(iv)

Entrances to rooms and spaces that are not under the observation of an attendant shall be kept locked.

1910.269(u)(4)(v)

Unqualified persons may not enter the rooms or spaces while the electric supply lines or equipment are energized.

1910.269(u)(5)

"Guarding of energized parts."

1910.269(u)(5)(i)

Guards shall be provided around all live parts operating at more than 150 volts to ground without an insulating covering, unless the location of the live parts gives sufficient horizontal or vertical or a combination of these clearances to minimize the possibility of accidental employee contact.

Note: Guidelines for the dimensions of clearance distances about electric equipment in substations are contained in American National Standard - National Electrical Safety Code, ANSI C2-1987. Installations meeting the ANSI provisions comply with paragraph (u)(5)(i) of this section. An installation that does not conform to this ANSI standard will, nonetheless, be considered as complying with paragraph (u)(5)(i) of this section if the employer can demonstrate that the installation provides sufficient clearance based on the following evidence:

[1] That the installation conforms to the edition of ANSI C2 that was in effect at the time the installation was made,

[2] That each employee is isolated from energized parts at the point of closest approach, and

[3] That the precautions taken when work is performed on the installation provide protection equivalent to the protection that would be provided by horizontal and vertical clearances meeting ANSI C2-1987.

1910.269(u)(5)(ii)

Except for fuse replacement and other necessary access by qualified persons, the guarding of energized parts within a compartment shall be maintained during operation and maintenance functions to prevent accidental contact with energized parts and to prevent tools or other equipment from being dropped on energized parts.

1910.269(u)(5)(iii)

When guards are removed from energized equipment, barriers shall be installed around the work area to prevent employees who are not working on the equipment, but who are in the area, from contacting the exposed live parts.

..1910.269(u)(6)

1910.269(u)(6)

"Substation entry."

1910.269(u)(6)(i)

Upon entering an attended substation, each employee other than those regularly working in the station shall report his or her presence to the employee in charge in order to receive information on special system conditions affecting employee safety.

1910.269(u)(6)(ii)

The job briefing required by paragraph (c) of this section shall cover such additional subjects as the location of energized equipment in or adjacent to the work area and the limits of any deenergized work area.

1910.269(v)

"Power generation." This paragraph provides additional requirements and related work practices for power generating plants.

1910.269(v)(1)

"Interlocks and other safety devices."

1910.269(v)(1)(i)

Interlocks and other safety devices shall be maintained in a safe, operable condition.

1910.269(v)(1)(ii)

No interlock or other safety device may be modified to defeat its function, except for test, repair, or adjustment of the device.

1910.269(v)(2)

"Changing brushes." Before exciter or generator brushes are changed while the generator is in service, the exciter or generator field shall be checked to determine whether a ground condition exists. The brushes may not be changed while the generator is energized if a ground condition exists.

1910.269(v)(3)

"Access and working space." Sufficient access and working space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment.

Note: Guidelines for the dimensions of access and working space about electric equipment in generating stations are contained in American National Standard - National Electrical Safety Code, ANSI C2-1987. Installations meeting the ANSI provisions comply with paragraph (v)(3) of this section. An installation that does not conform to this ANSI standard will, nonetheless, be considered as complying with paragraph (v)(3) of this section if the employer can demonstrate that the installation provides ready and safe access based on the following evidence:

[1] That the installation conforms to the edition of ANSI C2 that was in effect at the time the installation was made,

[2] That the configuration of the installation enables employees to maintain the minimum approach distances required by paragraph (l)(2) of this section while they are working on exposed, energized parts, and

[3] That the precautions taken when work is performed on the installation provide protection equivalent to the protection that would be provided by access and working space meeting ANSI C2-1987.

..1910.269(v)(4)

1910.269(v)(4)

"Guarding of rooms containing electric supply equipment."

1910.269(v)(4)(i)

Rooms and spaces in which electric supply lines or equipment are installed shall meet the requirements of paragraphs (v)(4)(ii) through (v)(4)(v) of this section under the following conditions:

1910.269(v)(4)(i)(A)

If exposed live parts operating at 50 to 150 volts to ground are located within 8 feet of the ground or other working surface inside the room or space,

1910.269(v)(4)(i)(B)

If live parts operating at 151 to 600 volts and located within 8 feet of the ground or other working surface inside the room or space are guarded only by location, as permitted under paragraph (v)(5)(i) of this section, or

1910.269(v)(4)(i)(C)

If live parts operating at more than 600 volts are located within the room or space, unless:

1910.269(v)(4)(i)(C)(1)

The live parts are enclosed within grounded, metal-enclosed equipment whose only openings are designed so that foreign objects inserted in these openings will be deflected from energized parts, or

1910.269(v)(4)(i)(C)(2)

The live parts are installed at a height above ground and any other working surface that provides protection at the voltage to which they are energized corresponding to the protection provided by an 8-foot height at 50 volts.

..1910.269(v)(4)(ii)

1910.269(v)(4)(ii)

The rooms and spaces shall be so enclosed within fences, screens, partitions, or walls as to minimize the possibility that unqualified persons will enter.

1910.269(v)(4)(iii)

Signs warning unqualified persons to keep out shall be displayed at entrances to the rooms and spaces.

1910.269(v)(4)(iv)

Entrances to rooms and spaces that are not under the observation of an attendant shall be kept locked.

1910.269(v)(4)(v)

Unqualified persons may not enter the rooms or spaces while the electric supply lines or equipment are energized.

1910.269(v)(5)

"Guarding of energized parts."

1910.269(v)(5)(i)

Guards shall be provided around all live parts operating at more than 150 volts to ground without an insulating covering, unless the location of the live parts gives sufficient horizontal or vertical or a combination of these clearances to minimize the possibility of accidental employee contact.

Note: Guidelines for the dimensions of clearance distances about electric equipment in generating stations are contained in American National Standard - National Electrical Safety Code, ANSI C2-1987. Installations meeting the ANSI provisions comply with paragraph (v)(5)(i) of this section. An installation that does not conform to this ANSI standard will, nonetheless, be considered as complying with paragraph (v)(5)(i) of this section if the employer can demonstrate that the installation provides sufficient clearance based on the following evidence:

[1] That the installation conforms to the edition of ANSI C2 that was in effect at the time the installation was made,

[2] That each employee is isolated from energized parts at the point of closest approach, and

[3] That the precautions taken when work is performed on the installation provide protection equivalent to the protection that would be provided by horizontal and vertical clearances meeting ANSI C2-1987.

1910.269(v)(5)(ii)

Except for fuse replacement or other necessary access by qualified persons, the guarding of energized parts within a compartment shall be maintained during operation and maintenance functions to prevent accidental contact with energized parts and to prevent tools or other equipment from being dropped on energized parts.

..1910.269(v)(5)(iii)

1910.269(v)(5)(iii)

When guards are removed from energized equipment, barriers shall be installed around the work area to prevent employees who are not working on the equipment, but who are in the area, from contacting the exposed live parts.

1910.269(v)(6)

"Water or steam spaces." The following requirements apply to work in water and steam spaces associated with boilers:

1910.269(v)(6)(i)

A designated employee shall inspect conditions before work is permitted and after its completion. Eye protection, or full face protection if necessary, shall be worn at all times when condenser, heater, or boiler tubes are being cleaned.

1910.269(v)(6)(ii)

Where it is necessary for employees to work near tube ends during cleaning, shielding shall be installed at the tube ends.

1910.269(v)(7)

"Chemical cleaning of boilers and pressure vessels." The following requirements apply to chemical cleaning of boilers and pressure vessels:

1910.269(v)(7)(i)

Areas where chemical cleaning is in progress shall be cordoned off to restrict access during cleaning. If flammable liquids, gases, or vapors or combustible materials will be used or might be produced during the cleaning process, the following requirements also apply:

1910.269(v)(7)(i)(A)

The area shall be posted with signs restricting entry and warning of the hazards of fire and explosion; and

..1910.269(v)(7)(i)(B)

1910.269(v)(7)(i)(B)

Smoking, welding, and other possible ignition sources are prohibited in these restricted areas.

1910.269(v)(7)(ii)

The number of personnel in the restricted area shall be limited to those necessary to accomplish the task safely.

1910.269(v)(7)(iii)

There shall be ready access to water or showers for emergency use.

Note: See 1910.141 of this Part for requirements that apply to the water supply and to washing facilities.

1910.269(v)(7)(iv)

Employees in restricted areas shall wear protective equipment meeting the requirements of Subpart I of this Part and including, but not limited to, protective clothing, boots, goggles, and gloves.

1910.269(v)(8)

"Chlorine systems."

1910.269(v)(8)(i)

Chlorine system enclosures shall be posted with signs restricting entry and warning of the hazard to health and the hazards of fire and explosion.

Note: See Subpart Z of this Part for requirements necessary to protect the health of employees from the effects of chlorine.

1910.269(v)(8)(ii)

Only designated employees may enter the restricted area. Additionally, the number of personnel shall be limited to those necessary to accomplish the task safely.

1910.269(v)(8)(iii)

Emergency repair kits shall be available near the shelter or enclosure to allow for the prompt repair of leaks in chlorine lines, equipment, or containers.

..1910.269(v)(8)(iv)

1910.269(v)(8)(iv)

Before repair procedures are started, chlorine tanks, pipes, and equipment shall be purged with dry air and isolated from other sources of chlorine.

1910.269(v)(8)(v)

The employer shall ensure that chlorine is not mixed with materials that would react with the chlorine in a dangerously exothermic or other hazardous manner.

1910.269(v)(9)

"Boilers."

1910.269(v)(9)(i)

Before internal furnace or ash hopper repair work is started, overhead areas shall be inspected for possible falling objects. If the hazard of falling objects exists, overhead protection such as planking or nets shall be provided.

1910.269(v)(9)(ii)

When opening an operating boiler door, employees shall stand clear of the opening of the door to avoid the heat blast and gases which may escape from the boiler.

1910.269(v)(10)

"Turbine generators."

1910.269(v)(10)(i)

Smoking and other ignition sources are prohibited near hydrogen or hydrogen sealing systems, and signs warning of the danger of explosion and fire shall be posted.

1910.269(v)(10)(ii)

Excessive hydrogen makeup or abnormal loss of pressure shall be considered as an emergency and shall be corrected immediately.

..1910.269(v)(10)(iii)

1910.269(v)(10)(iii)

A sufficient quantity of inert gas shall be available to purge the hydrogen from the largest generator.

1910.269(v)(11)

"Coal and ash handling."

1910.269(v)(11)(i)

Only designated persons may operate railroad equipment.

1910.269(v)(11)(ii)

Before a locomotive or locomotive crane is moved, a warning shall be given to employees in the area.

1910.269(v)(11)(iii)

Employees engaged in switching or dumping cars may not use their feet to line up drawheads.

1910.269(v)(11)(iv)

Drawheads and knuckles may not be shifted while locomotives or cars are in motion.

1910.269(v)(11)(v)

When a railroad car is stopped for unloading, the car shall be secured from displacement that could endanger employees.

1910.269(v)(11)(vi)

An emergency means of stopping dump operations shall be provided at railcar dumps.

1910.269(v)(11)(vii)

The employer shall ensure that employees who work in coal- or ash-handling conveyor areas are trained and knowledgeable in conveyor operation and in the requirements of paragraphs (v)(11)(viii) through (v)(11)(xii) of this section.

..1910.269(v)(11)(viii)

1910.269(v)(11)(viii)

Employees may not ride a coal- or ash-handling conveyor belt at any time. Employees may not cross over the conveyor belt, except at walkways, unless the conveyor's energy source has been deenergized and has been locked out or tagged in accordance with paragraph (d) of this section.

1910.269(v)(11)(ix)

A conveyor that could cause injury when started may not be started until personnel in the area are alerted by a signal or by a designated person that the conveyor is about to start.

1910.269(v)(11)(x)

If a conveyor that could cause injury when started is automatically controlled or is controlled from a remote location, an audible device shall be provided that sounds an alarm that will be recognized by each employee as a warning that the conveyor will start and that can be clearly heard at all points along the conveyor where personnel may be present. The warning device shall be actuated by the device starting the conveyor and shall continue for a period of time before the conveyor starts that is long enough to allow employees to move clear of the conveyor system. A visual warning may be used in place of the audible device if the employer can demonstrate that it will provide an equally effective warning in the particular circumstances involved.

Exception: If the employer can demonstrate that the system's function would be seriously hindered by the required time delay, warning signs may be provided in place of the audible warning device. If the system was installed before January 31, 1995, warning signs may be provided in place of the audible warning device until such time as the conveyor or its control system is rebuilt or rewired. These warning signs shall be clear, concise, and legible and shall

indicate that conveyors and allied equipment may be started at any time, that danger exists, and that personnel must keep clear. These warning signs shall be provided along the conveyor at areas not guarded by position or location.

..1910.269(v)(11)(xi)

1910.269(v)(11)(xi)

Remotely and automatically controlled conveyors, and conveyors that have operating stations which are not manned or which are beyond voice and visual contact from drive areas, loading areas, transfer points, and other locations on the conveyor path not guarded by location, position, or guards shall be furnished with emergency stop buttons, pull cords, limit switches, or similar emergency stop devices. However, if the employer can demonstrate that the design, function, and operation of the conveyor do not expose an employee to hazards, an emergency stop device is not required.

1910.269(v)(11)(xi)(A)

Emergency stop devices shall be easily identifiable in the immediate vicinity of such locations.

1910.269(v)(11)(xi)(B)

An emergency stop device shall act directly on the control of the conveyor involved and may not depend on the stopping of any other equipment.

1910.269(v)(11)(xi)(C)

Emergency stop devices shall be installed so that they cannot be overridden from other locations.

1910.269(v)(11)(xii)

Where coal-handling operations may produce a combustible atmosphere from fuel sources or from flammable gases or dust, sources of ignition shall be eliminated or safely controlled to prevent ignition of the combustible atmosphere.

Note: Locations that are hazardous because of the presence of combustible dust are classified as Class II hazardous locations. See 1910.307 of this Part.

1910.269(v)(11)(xiii)

An employee may not work on or beneath overhanging coal in coal bunkers, coal silos, or coal storage areas, unless the employee is protected from all hazards posed by shifting coal.

..1910.269(v)(11)(xiv)

1910.269(v)(11)(xiv)

An employee entering a bunker or silo to dislodge the contents shall wear a body harness

with lifeline attached. The lifeline shall be secured to a fixed support outside the bunker and shall be attended at all times by an employee located outside the bunker or facility.

1910.269(v)(12)

"Hydroplants and equipment." Employees working on or close to water gates, valves, intakes, forebays, flumes, or other locations where increased or decreased water flow or levels may pose a significant hazard shall be warned and shall vacate such dangerous areas before water flow changes are made.

1910.269(w)

"Special conditions."

1910.269(w)(1)

"Capacitors." The following additional requirements apply to work on capacitors and on lines connected to capacitors.

Note: See paragraphs (m) and (n) of this section for requirements pertaining to the deenergizing and grounding of capacitor installations.

1910.269(w)(1)(i)

Before employees work on capacitors, the capacitors shall be disconnected from energized sources and, after a wait of at least 5 minutes from the time of disconnection, short-circuited.

1910.269(w)(1)(ii)

Before the units are handled, each unit in series-parallel capacitor banks shall be short-circuited between all terminals and the capacitor case or its rack. If the cases of capacitors are on ungrounded substation racks, the racks shall be bonded to ground.

1910.269(w)(1)(iii)

Any line to which capacitors are connected shall be short-circuited before it is considered deenergized.

..1910.269(w)(2)

1910.269(w)(2)

"Current transformer secondaries." The secondary of a current transformer may not be opened while the transformer is energized. If the primary of the current transformer cannot be deenergized before work is performed on an instrument, a relay, or other section of a current transformer secondary circuit, the circuit shall be bridged so that the current transformer secondary will not be opened.

1910.269(w)(3)

"Series streetlighting."

1910.269(w)(3)(i)

If the open-circuit voltage exceeds 600 volts, the series streetlighting circuit shall be worked in accordance with paragraph (q) or (t) of this section, as appropriate.

1910.269(w)(3)(ii)

A series loop may only be opened after the streetlighting transformer has been deenergized and isolated from the source of supply or after the loop is bridged to avoid an open-circuit condition.

1910.269(w)(4)

"Illumination." Sufficient illumination shall be provided to enable the employee to perform the work safely.

1910.269(w)(5)

"Protection against drowning."

1910.269(w)(5)(i)

Whenever an employee may be pulled or pushed or may fall into water where the danger of drowning exists, the employee shall be provided with and shall use U.S. Coast Guard approved personal flotation devices.

1910.269(w)(5)(ii)

Each personal flotation device shall be maintained in safe condition and shall be inspected frequently enough to ensure that it does not have rot, mildew, water saturation, or any other condition that could render the device unsuitable for use.

..1910.269(w)(5)(iii)

1910.269(w)(5)(iii)

An employee may cross streams or other bodies of water only if a safe means of passage, such as a bridge, is provided.

1910.269(w)(6)

"Employee protection in public work areas."

1910.269(w)(6)(i)

Traffic control signs and traffic control devices used for the protection of employees shall meet the requirements of 1926.200(g)(2) of this Chapter.

1910.269(w)(6)(ii)

Before work is begun in the vicinity of vehicular or pedestrian traffic that may endanger employees, warning signs or flags and other traffic control devices shall be placed in conspicuous locations to alert and channel approaching traffic.

1910.269(w)(6)(iii)

Where additional employee protection is necessary, barricades shall be used.

1910.269(w)(6)(iv)

Excavated areas shall be protected with barricades.

1910.269(w)(6)(v)

At night, warning lights shall be prominently displayed.

..1910.269(w)(7)

1910.269(w)(7)

"Backfeed." If there is a possibility of voltage backfeed from sources of cogeneration or from the secondary system (for example, backfeed from more than one energized phase feeding a common load), the requirements of paragraph (l) of this section apply if the lines or equipment are to be worked as energized, and the requirements of paragraphs (m) and (n) of this section apply if the lines or equipment are to be worked as deenergized.

1910.269(w)(8)

"Lasers." Laser equipment shall be installed, adjusted, and operated in accordance with 1926.54 of this Chapter.

1910.269(w)(9)

"Hydraulic fluids." Hydraulic fluids used for the insulated sections of equipment shall provide insulation for the voltage involved.

1910.269(x)

"Definitions."

"Affected employee." An employee whose job requires him or her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.

"Attendant." An employee assigned to remain immediately outside the entrance to an enclosed or other space to render assistance as needed to employees inside the space.

"Authorized employee." An employee who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

"Automatic circuit recloser." A self-controlled device for interrupting and reclosing an alternating current circuit with a predetermined sequence of opening and reclosing followed by resetting, hold-closed, or lockout operation.

"Barricade." A physical obstruction such as tapes, cones, or A-frame type wood or metal structures intended to provide a warning about and to limit access to a hazardous area.

"Barrier." A physical obstruction which is intended to prevent contact with energized lines or equipment or to prevent unauthorized access to a work area.

"Bond." The electrical interconnection of conductive parts designed to maintain a common electrical potential.

"Bus." A conductor or a group of conductors that serve as a common connection for two or more circuits.

"Bushing." An insulating structure, including a through conductor or providing a passageway for such a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purposes of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.

"Cable." A conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).

"Cable sheath." A conductive protective covering applied to cables.

Note: A cable sheath may consist of multiple layers of which one or more is conductive.

"Circuit." A conductor or system of conductors through which an electric current is intended to flow.

"Clearance (between objects)." The clear distance between two objects measured surface to surface.

"Clearance (for work)." Authorization to perform specified work or permission to enter a restricted area.

"Communication lines. (See Lines, communication.)"

"Conductor." A material, usually in the form of a wire, cable, or bus bar, used for carrying an electric current.

"Covered conductor." A conductor covered with a dielectric having no rated insulating strength or having a rated insulating strength less than the voltage of the circuit in which the

conductor is used.

"Current-carrying part." A conducting part intended to be connected in an electric circuit to a source of voltage. Non-current-carrying parts are those not intended to be so connected.

"Deenergized." Free from any electrical connection to a source of potential difference and from electric charge; not having a potential different from that of the earth.

Note: The term is used only with reference to current-carrying parts, which are sometimes energized (alive).

"Designated employee (designated person)." An employee (or person) who is designated by the employer to perform specific duties under the terms of this section and who is knowledgeable in the construction and operation of the equipment and the hazards involved.

"Electric line truck." A truck used to transport personnel, tools, and material for electric supply line work.

"Electric supply equipment." Equipment that produces, modifies, regulates, controls, or safeguards a supply of electric energy.

"Electric supply lines. (See Lines, electric supply.)"

"Electric utility." An organization responsible for the installation, operation, or maintenance of an electric supply system.

"Enclosed space." A working space, such as a manhole, vault, tunnel, or shaft, that has a limited means of egress or entry, that is designed for periodic employee entry under normal operating conditions, and that under normal conditions does not contain a hazardous atmosphere, but that may contain a hazardous atmosphere under abnormal conditions.

Note: Spaces that are enclosed but not designed for employee entry under normal operating conditions are not considered to be enclosed spaces for the purposes of this section. Similarly, spaces that are enclosed and that are expected to contain a hazardous atmosphere are not considered to be enclosed spaces for the purposes of this section. Such spaces meet the definition of permit spaces in 1910.146 of this Part, and entry into them must be performed in accordance with that standard.

"Energized (alive, live)." Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of earth in the vicinity.

"Energy isolating device." A physical device that prevents the transmission or release of energy, including, but not limited to, the following: a manually operated electric circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a slip blind, a line valve, blocks, and any similar device with a visible indication of the position of the device. Push buttons, selector switches, and other control-circuit-type devices are not energy isolating devices.)

"Energy source." Any electrical, mechanical, hydraulic, pneumatic, chemical, nuclear,

thermal, or other energy source that could cause injury to personnel.

"Equipment (electric)." A general term including material, fittings, devices, appliances, fixtures, apparatus, and the like used as part of or in connection with an electrical installation.

"Exposed." Not isolated or guarded.

"Ground." A conducting connection, whether intentional or accidental, between an electric circuit or equipment and the earth, or to some conducting body that serves in place of the earth.

"Grounded." Connected to earth or to some conducting body that serves in place of the earth.

"Guarded." Covered, fenced, enclosed, or otherwise protected, by means of suitable covers or casings, barrier rails or screens, mats, or platforms, designed to minimize the possibility, under normal conditions, of dangerous approach or accidental contact by persons or objects.

Note: Wires which are insulated, but not otherwise protected, are not considered as guarded.

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from an enclosed space), injury, or acute illness from one or more of the following causes:

1910.269(x)(1)

Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

1910.269(x)(2)

Airborne combustible dust at a concentration that meets or exceeds its LFL;

Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

1910.269(x)(3)

Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

1910.269(x)(4)

Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, "Occupational Health and Environmental Control", or in Subpart Z, "Toxic and Hazardous Substances," of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

..1910.269(x)(5)

1910.269(x)(5)

Any other atmospheric condition that is immediately dangerous to life or health.

Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"High-power tests." Tests in which fault currents, load currents, magnetizing currents, and line-dropping currents are used to test equipment, either at the equipment's rated voltage or at lower voltages.

"High-voltage tests." Tests in which voltages of approximately 1000 volts are used as a practical minimum and in which the voltage source has sufficient energy to cause injury.

"High wind." A wind of such velocity that the following hazards would be present:

[1] An employee would be exposed to being blown from elevated locations, or

[2] An employee or material handling equipment could lose control of material being handled, or

[3] An employee would be exposed to other hazards not controlled by the standard involved.

Note: Winds exceeding 40 miles per hour (64.4 kilometers per hour), or 30 miles per hour (48.3 kilometers per hour) if material handling is involved, are normally considered as meeting this criteria unless precautions are taken to protect employees from the hazardous effects of the wind.

"Immediately dangerous to life or health (IDLH)" means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Note: Some materials - hydrogen fluoride gas and cadmium vapor, for example - may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

"Insulated." Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.

Note: When any object is said to be insulated, it is understood to be insulated for the conditions to which it is normally subjected. Otherwise, it is, within the purpose of this section, uninsulated.

"Insulation (cable)." That which is relied upon to insulate the conductor from other conductors or conducting parts or from ground.

"Line-clearance tree trimmer." An employee who, through related training or on-the-job experience or both, is familiar with the special techniques and hazards involved in line-clearance tree trimming.

Note 1: An employee who is regularly assigned to a line-clearance tree-trimming crew and who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a line-clearance tree trimmer is considered to be a line-clearance tree trimmer for the performance of those duties.

Note 2: A line-clearance tree trimmer is not considered to be a "qualified employee" under this section unless he or she has the training required for a qualified employee under paragraph (a)(2)(ii) of this section. However, under the electrical safety-related work practices standard in Subpart S of this Part, a line-clearance tree trimmer is considered to be a "qualified employee". Tree trimming performed by such "qualified employees" is not subject to the electrical safety-related work practice requirements contained in 1910.331 through 1910.335 of this Part. (See also the note following 1910.332(b)(3) of this Part for information regarding the training an employee must have to be considered a qualified employee under 1910.331 through 1910.335 of this part.)

"Line-clearance tree trimming." The pruning, trimming, repairing, maintaining, removing, or clearing of trees or the cutting of brush that is within 10 feet (305 cm) of electric supply lines and equipment.

"Lines. [1] Communication lines." The conductors and their supporting or containing structures which are used for public or private signal or communication service, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. If the lines are operating at less than 150 volts, no limit is placed on the transmitted power of the system. Under certain conditions, communication cables may include communication circuits exceeding these limitations where such circuits are also used to supply power solely to communication equipment.

Note: Telephone, telegraph, railroad signal, data, clock, fire, police alarm, cable television, and other systems conforming to this definition are included. Lines used for signaling purposes, but not included under this definition, are considered as electric supply lines of the same voltage.

[2] "Electric supply lines". Conductors used to transmit electric energy and their necessary supporting or containing structures. Signal lines of more than 400 volts are always supply lines within this section, and those of less than 400 volts are considered as supply lines, if so run and operated throughout.

"Manhole." A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining submersible equipment or cable.

"Manhole steps." A series of steps individually attached to or set into the walls of a manhole structure.

"Minimum approach distance." The closest distance an employee is permitted to approach an

energized or a grounded object.

"Qualified employee (qualified person)." One knowledgeable in the construction and operation of the electric power generation, transmission, and distribution equipment involved, along with the associated hazards.

Note 1: An employee must have the training required by paragraph (a)(2)(ii) of this section in order to be considered a qualified employee.

Note 2: Except under paragraph (g)(2)(v) of this section, an employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

"Step bolt." A bolt or rung attached at intervals along a structural member and used for foot placement during climbing or standing.

"Switch." A device for opening and closing or for changing the connection of a circuit. In this section, a switch is understood to be manually operable, unless otherwise stated.

"System operator." A qualified person designated to operate the system or its parts.

"Vault." An enclosure, above or below ground, which personnel may enter and which is used for the purpose of installing, operating, or maintaining equipment or cable.

"Vented vault." A vault that has provision for air changes using exhaust flue stacks and low level air intakes operating on differentials of pressure and temperature providing for airflow which precludes a hazardous atmosphere from developing.

"Voltage." The effective (rms) potential difference between any two conductors or between a conductor and ground. Voltages are expressed in nominal values unless otherwise indicated. The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The operating voltage of the system may vary above or below this value.

[59 FR 40672, Aug. 9, 1994; 59 FR 51672, Oct. 12, 1994]

Next Standard (1910.269 App A)

Regulations (Standards - 29 CFR) - Table of Contents

Back to Top www.osha.gov

Contact Us | Freedom of Information Act | Information Quality | Customer Survey
Privacy and Security Statement | Disclaimers

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210

OSHA

P1

U.S. Department of Labor
Occupational Safety and Health Administration
Building 7 - Suite 110
LaVista Perimeter Office Park
Tucker, GA 30084
Phone: (770)493-6644 FAX: (770)493-7725

COPY

Notice of Unsafe or Unhealthful Working Conditions

Inspection Number: 303381974
Inspection Date(s): 09/19/2000-09/20/2000
Issuance Date: 10/13/2000

To:
US ARMY FORT GORDON, GA
DA, HQS. US ARMY GARRISION US ARMY
SIGNAL CENTER
FORT GORDON, GA 30905-5000

The violation(s) described in this Notice is (are) alleged to have occurred on or about the day(s) the inspection was made unless otherwise indicated within the description given below.

Inspection Site:
UMCS BLDG. 14600 and Power Plant 25910
Fort Gordon, GA 30905-5000

This Notice of Unsafe or Unhealthful Working Conditions (Notice) describes violations of the Occupational Safety and Health Act of 1970, the Executive Order 12196, and 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters. You must abate the violations referred to in this Notice by the dates listed unless within 15 working days (excluding weekends and Federal holidays) from your receipt of this Notice you request an Informal Conference with the U.S. Department of Labor Area Office at the address shown above.

Posting - The law requires that a copy of this Notice be posted immediately in a prominent place at or near the location of the violation(s) cited herein, or, if it is not practicable because of the nature of the employer's operations, where it will be readily observable by all affected employees. This Notice must remain posted until the violation(s) cited herein has (have) been abated, or for 3 working days (excluding weekends and Federal holidays), whichever is longer.

Notification of Corrective Action - For **each** violation which you do not contest, you are required by 29 CFR 1903.19 to submit an Abatement Certification to the Area Director of the OSHA office issuing the citation and identified above. The certification **must** be sent by you within **10 calendar days** of the abatement date indicated on the citation. For **Willful** and **Repeat** violations, documents (examples: photos, copies of receipts, training records, etc.) demonstrating that abatement is complete must accompany the certification. Where the citation is classified as **Serious** and the citations states that the abatement documentation is required, documents such as those described above are required to be submitted along with the abatement certificate. If the citation indicates that the violation was corrected during the inspection, no abatement certification is required for that item.

All abatement verification documents must contain the following information: 1) Your name and address; 2) the inspection number (found on front page); 3) the citation and the citation items number(s) to which the submission relates; 4) a statement that the information is accurate; 5) the signature of the employer or employer's authorized representative; 6) the date the hazard was corrected; 7) a brief statement of how the hazard was corrected; and 8) a statement that affected employees and their representatives have been informed of the abatement.

The law also requires a copy of all abatement verification documents, required by 29 CFR 1903.19 to be sent to OSHA, also be posted at the location where the violation appeared and the corrective action took place.

You should be aware that OSHA publishes information on its inspection and citation activity on the Internet under the provisions of the Electronic Freedom of Information Act. The information related to your inspection will be available 30 calendar days after the Citation Issuance Date. You are encouraged to review the information concerning your establishment at WWW.OSHA.GOV. If you have any dispute with the accuracy of the information displayed, please contact this office.

Employer Discrimination Unlawful - The law prohibits discrimination by any person against an employee for filing a complaint or for exercising any rights under this Act. An employee who believes that he/she has been discriminated against may file a complaint with the U.S. Department of Labor Area Office at the address shown above.

Informal Conference - An informal conference is not required. However, if you wish to have such a conference you may request one with the Area Director within 15 working days after receipt of this Notice. As soon as the time, date, and place of the informal conference have been determined please complete the enclosed "Notice to Employees" and post it where the Notice is posted. During such an informal conference you may present any evidence or views which you believe would support an adjustment to the Notice. In addition, bring to the conference any and all supporting documentation of existing conditions as well as any abatement steps taken thus far.

NOTICE TO EMPLOYEES

An informal conference has been scheduled with the Occupational Safety and Health Administration (OSHA) to discuss the Notice of Unsafe or Unhealthful Working Conditions (Notice) issued on 10/13/2000. The conference will be held at the OSHA office located at Building 7 - Suite 110, LaVista Perimeter Office Park, Tucker, GA, 30084 on _____ at _____. Employees and/or representatives of employees have a right to attend an informal conference.

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

The alleged violations below have been grouped because they involve similar or related hazards that may increase the potential for injury resulting from an accident.

Citation 1 Item 1a Type of Violation: Serious

29 CFR 1910.132(a): Protective equipment was not used when necessary whenever hazards capable of causing injury and impairment were encountered:

a) Personal protective equipment to prevent employee exposure to hazards capable of causing bodily injury and impairment, such as oil products, battery acids, antifreeze and unexpected electrical energy sources, had not been provided to employees.

Date By Which Violation Must be Abated: 12/01/2000

Citation 1 Item 1b Type of Violation: Serious

29 CFR 1910.132(d)(1): The employer did not assess the workplace to determine if hazards are present, or likely to be present, which necessitate the use of personal protective equipment (PPE).

a) The employer has not conducted a hazard assessement of USMC Bldg. # 14600 and Power plant # 25910.

Date By Which Violation Must be Abated: 12/01/2000

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

Citation 1 Item 1c Type of Violation: Serious

29 CFR 1910.132(f)(1): The employer did not provide training to each employee who is required by this section to use personal protective equipment (PPE) as described in 1910.132(f)(1)(i) through (v):

a) The employer has not provided training to all employees that were required to wear personal protective equipment when performing their assigned work assignments. The employees had been exposed to potential bodily contamination from motor oil, battery acids, and antifreeze products when PPE and employee training had not been provided to UMCS Bldg. # 14600 and Power Plant # 25910 employees.

Date By Which Violation Must be Abated: 12/01/2000

The alleged violations below have been grouped because they involve similar or related hazards that may increase the potential for injury resulting from an accident.

Citation 1 Item 2a Type of Violation: Serious

29 CFR 1910.147(c)(1): The employer did not establish a program consisting of an energy control procedure and employee training to ensure that before any employee performed any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment would be isolated, and rendered inoperative in accordance with 29 CFR 1910.147(c)(4):

a) For all authorized, affected employees who were exposed to illness and/or injury from the energizing, start up or release of stored energy from electrical equipment in UMCS Bldg. # 14600, and at the Power Plant # 25910 electrical generator site.

Date By Which Violation Must be Abated: 12/01/2000

Notice of Unsafe or Unhealthful Working Conditions

Company Name: US ARMY FORT GORDON, GA
Inspection Site: UMCS BLDG. 14600 and Power Plant 25910, Fort Gordon, GA 30905-0000

Citation 1 Item 2b Type of Violation: Serious

29 CFR 1910.147(c)(7)(i)(A): Each authorized employee did not receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control:

a) UMCS Bldg. # 14600 and Power Plant # 25910 authorized employees who perform service and maintenance on electrical equipment and electrical generators had not received training on the employer's lockout procedures.

Date By Which Violation Must be Abated: 12/01/2000

R. G. FINNEY
Area Director

P7

U.S. Department of Labor
Occupational Safety & Health Administration
www.osha.gov
Search GO Advanced Search | A

[Text Only]

Regulations (Standards - 29 CFR)

General recording criteria. - 1904.7

Regulations (Standards - 29 CFR) - Table of Contents

• **Part Number:**	1904
• **Part Title:**	Recording and Reporting Occupational Injuries and Illness
• **Subpart:**	C
• **Subpart Title:**	Recordkeeping Forms and Recording Criteria
• **Standard Number:**	1904.7
• **Title:**	General recording criteria.

1904.7(a)

Basic requirement. You must consider an injury or illness to meet the general recording criteria, and therefore to be recordable, if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

1904.7(b)

Implementation.

1904.7(b)(1)

How do I decide if a case meets one or more of the general recording criteria? A work-related injury or illness must be recorded if it results in one or more of the following:

1904.7(b)(1)(i)

Death. See § 1904.7(b)(2).

1904.7(b)(1)(ii)

Days away from work. See § 1904.7(b)(3).

1904.7(b)(1)(iii)

Restricted work or transfer to another job. See § 1904.7(b)(4).

1904.7(b)(1)(iv)

P8

Medical treatment beyond first aid. See § 1904.7(b)(5).

1904.7(b)(1)(v)

Loss of consciousness. See § 1904.7(b)(6).

1904.7(b)(1)(vi)

A significant injury or illness diagnosed by a physician or other licensed health care professional. See § 1904.7(b)(7).

1904.7(b)(2)

How do I record a work-related injury or illness that results in the employee's death? You must record an injury or illness that results in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related fatality to OSHA within eight (8) hours, as required by § 1904.39.

1904.7(b)(3)

How do I record a work-related injury or illness that results in days away from work? When an injury or illness involves one or more days away from work, you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away, and update the day count when the actual number of days is known.

1904.7(b)(3)(i)

Do I count the day on which the injury occurred or the illness began? No, you begin counting days away on the day after the injury occurred or the illness began.

1904.7(b)(3)(ii)

How do I record an injury or illness when a physician or other licensed health care professional recommends that the worker stay at home but the employee comes to work anyway? You must record these injuries and illnesses on the OSHA 300 Log using the check box for cases with days away from work and enter the number of calendar days away recommended by the physician or other licensed health care professional. If a physician or other licensed health care professional recommends days away, you should encourage your employee to follow that recommendation. However, the days away must be recorded whether the injured or ill employee follows the physician or licensed health care professional's recommendation or not. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation.

1904.7(b)(3)(iii)

How do I handle a case when a physician or other licensed health care professional recommends that the worker return to work but the employee stays at home anyway? n this situation, you must end the count of days away from work on the date the physician or other licensed health care professional recommends that the employee return to work.

1904.7(b)(3)(iv)

How do I count weekends, holidays, or other days the employee would not have worked anyway? You must count the number of calendar days the employee was unable to work as a result of the injury or illness, regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days or other days off are included in the total number of days recorded if the employee would not have been able to work on those days because of a work-related injury or illness.

1904.7(b)(3)(v)

How do I record a case in which a worker is injured or becomes ill on a Friday and reports to work on a Monday, and was not scheduled to work on the weekend? You need to record this case only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the weekend. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

1904.7(b)(3)(vi)

How do I record a case in which a worker is injured or becomes ill on the day before scheduled time off such as a holiday, a planned vacation, or a temporary plant closing? You need to record a case of this type only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the scheduled time off. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

1904.7(b)(3)(vii)

Is there a limit to the number of days away from work I must count? Yes, you may "cap" the total days away at 180 calendar days. You are not required to keep track of the number of calendar days away from work if the injury or illness resulted in more than 180 calendar days away from work and/or days of job transfer or restriction. In such a case, entering 180 in the total days away column will be considered adequate.

1904.7(b)(3)(viii)

May I stop counting days if an employee who is away from work because of an injury or illness retires or leaves my company? Yes, if the employee leaves your company for some reason unrelated to the injury or illness, such as retirement, a plant closing, or to take another job, you may stop counting days away from work or days of restriction/job transfer. If the employee leaves your company because of the injury or illness, you must estimate the total number of days away or days of restriction/job transfer and enter the day count on the

p 10

300 Log.

1904.7(b)(3)(ix)

If a case occurs in one year but results in days away during the next calendar year, do I record the case in both years? No, you only record the injury or illness once. You must enter the number of calendar days away for the injury or illness on the OSHA 300 Log for the year in which the injury or illness occurred. If the employee is still away from work because of the injury or illness when you prepare the annual summary, estimate the total number of calendar days you expect the employee to be away from work, use this number to calculate the total for the annual summary, and then update the initial log entry later when the day count is known or reaches the 180-day cap.

1904.7(b)(4)

How do I record a work-related injury or illness that results in restricted work or job transfer? When an injury or illness involves restricted work or job transfer but does not involve death or days away from work, you must record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column.

1904.7(b)(4)(i)

How do I decide if the injury or illness resulted in restricted work? Restricted work occurs when, as the result of a work-related injury or illness:

1904.7(b)(4)(i)(A)

You keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or

1904.7(b)(4)(i)(B)

A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work.

1904.7(b)(4)(ii)

What is meant by "routine functions"? For recordkeeping purposes, an employee's routine functions are those work activities the employee regularly performs at least once per week.

1904.7(b)(4)(iii)

Do I have to record restricted work or job transfer if it applies only to the day on which the injury occurred or the illness began? No, you do not have to record restricted work or job transfers if you, or the physician or other licensed health care professional, impose the restriction or transfer only for the day on which the injury occurred or the illness began.

p 11

1904.7(b)(4)(iv)

f you or a physician or other licensed health care professional recommends a work restriction, is the injury or illness automatically recordable as a "restricted work" case? No, a recommended work restriction is recordable only if it affects one or more of the employee's routine job functions. To determine whether this is the case, you must evaluate the restriction in light of the routine functions of the injured or ill employee's job. If the restriction from you or the physician or other licensed health care professional keeps the employee from performing one or more of his or her routine job functions, or from working the full workday the injured or ill employee would otherwise have worked, the employee's work has been restricted and you must record the case.

1904.7(b)(4)(v)

How do I record a case where the worker works only for a partial work shift because of a work-related injury or illness? A partial day of work is recorded as a day of job transfer or restriction for recordkeeping purposes, except for the day on which the injury occurred or the illness began.

1904.7(b)(4)(vi)

If the injured or ill worker produces fewer goods or services than he or she would have produced prior to the injury or illness but otherwise performs all of the routine functions of his or her work, is the case considered a restricted work case? No, the case is considered restricted work only if the worker does not perform all of the routine functions of his or her job or does not work the full shift that he or she would otherwise have worked.

1904.7(b)(4)(vii)

How do I handle vague restrictions from a physician or other licensed health care professional, such as that the employee engage only in "light duty" or "take it easy for a week"? If you are not clear about the physician or other licensed health care professional's recommendation, you may ask that person whether the employee can do all of his or her routine job functions and work all of his or her normally assigned work shift. If the answer to both of these questions is "Yes," then the case does not involve a work restriction and does not have to be recorded as such. If the answer to one or both of these questions is "No," the case involves restricted work and must be recorded as a restricted work case. If you are unable to obtain this additional information from the physician or other licensed health care professional who recommended the restriction, record the injury or illness as a case involving restricted work.

1904.7(b)(4)(viii)

What do I do if a physician or other licensed health care professional recommends a job restriction meeting OSHA's definition, but the employee does all of his or her routine job functions anyway? You must record the injury or illness on the OSHA 300 Log as a restricted work case. If a physician or other licensed health care professional recommends a job restriction, you should ensure that the employee complies with that restriction. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most

p12

authoritative, and record the case based upon that recommendation.

1904.7(b)(4)(ix)

How do I decide if an injury or illness involved a transfer to another job? If you assign an injured or ill employee to a job other than his or her regular job for part of the day, the case involves transfer to another job. Note: This does not include the day on which the injury or illness occurred.

1904.7(b)(4)(x)

Are transfers to another job recorded in the same way as restricted work cases? Yes, both job transfer and restricted work cases are recorded in the same box on the OSHA 300 Log. For example, if you assign, or a physician or other licensed health care professional recommends that you assign, an injured or ill worker to his or her routine job duties for part of the day and to another job for the rest of the day, the injury or illness involves a job transfer. You must record an injury or illness that involves a job transfer by placing a check in the box for job transfer.

1904.7(b)(4)(xi)

How do I count days of job transfer or restriction? You count days of job transfer or restriction in the same way you count days away from work, using § 1904.7(b)(3)(i) to (viii), above. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. You must count at least one day of restricted work or job transfer for such cases.

1904.7(b)(5)

How do I record an injury or illness that involves medical treatment beyond first aid? If a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, you enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted.

1904.7(b)(5)(i)

What is the definition of medical treatment? "Medical treatment" means the management and care of a patient to combat disease or disorder. For the purposes of Part 1904, medical treatment does not include:

1904.7(b)(5)(i)(A)

Visits to a physician or other licensed health care professional solely for observation or counseling;

1904.7(b)(5)(i)(B)

P13

The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (**e.g.**, eye drops to dilate pupils); or

1904.7(b)(5)(i)(C)

"First aid" as defined in paragraph (b)(5)(ii) of this section.

1904.7(b)(5)(ii)

What is "first aid"? For the purposes of Part 1904, "first aid" means the following:

1904.7(b)(5)(ii)(A)

Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);

1904.7(b)(5)(ii)(B)

Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);

1904.7(b)(5)(ii)(C)

Cleaning, flushing or soaking wounds on the surface of the skin;

1904.7(b)(5)(ii)(D)

Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);

1904.7(b)(5)(ii)(E)

Using hot or cold therapy;

1904.7(b)(5)(ii)(F)

Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);

1904.7(b)(5)(ii)(G)

Using temporary immobilization devices while transporting an accident victim (**e.g.**, splints, slings, neck collars, back boards, etc.).

1904.7(b)(5)(ii)(H)

R 14

Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;

1904.7(b)(5)(ii)(I)

Using eye patches;

1904.7(b)(5)(ii)(J)

Removing foreign bodies from the eye using only irrigation or a cotton swab;

1904.7(b)(5)(ii)(K)

Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;

1904.7(b)(5)(ii)(L)

Using finger guards;

1904.7(b)(5)(ii)(M)

Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or

1904.7(b)(5)(ii)(N)

Drinking fluids for relief of heat stress.

1904.7(b)(5)(iii)

Are any other procedures included in first aid? No, this is a complete list of all treatments considered first aid for Part 1904 purposes.

1904.7(b)(5)(iv)

Does the professional status of the person providing the treatment have any effect on what is considered first aid or medical treatment? No, OSHA considers the treatments listed in § 1904.7(b)(5)(ii) of this Part to be first aid regardless of the professional status of the person providing the treatment. Even when these treatments are provided by a physician or other licensed health care professional, they are considered first aid for the purposes of Part 1904. Similarly, OSHA considers treatment beyond first aid to be medical treatment even when it is provided by someone other than a physician or other licensed health care professional.

1904.7(b)(5)(v)

What if a physician or other licensed health care professional recommends medical treatment but the employee does not follow the recommendation? If a physician or other licensed health care professional recommends medical treatment, you should encourage the injured or ill employee to follow that recommendation. However, you must record the case

P 15

even if the injured or ill employee does not follow the physician or other licensed health care professional's recommendation.

1904.7(b)(6)

Is every work-related injury or illness case involving a loss of consciousness recordable? Yes, you must record a work-related injury or illness if the worker becomes unconscious, regardless of the length of time the employee remains unconscious.

1904.7(b)(7)

What is a "significant" diagnosed injury or illness that is recordable under the general criteria even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness? Work-related cases involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum must always be recorded under the general criteria at the time of diagnosis by a physician or other licensed health care professional.

Note to § 1904.7: OSHA believes that most significant injuries and illnesses will result in one of the criteria listed in § 1904.7(a): death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. However, there are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases, such as byssinosis, silicosis, and some types of cancer, for which medical treatment or work restrictions may not be recommended at the time of diagnosis but are likely to be recommended as the disease progresses. OSHA believes that cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses, and must be recorded at the initial diagnosis even if medical treatment or work restrictions are not recommended, or are postponed, in a particular case.

[43 FR 31329, July 21, 1978; 62 FR 44552, Aug. 22, 1997; 66 FR 6126, Jan. 19, 2001]

Next Standard (1904.8)

Regulations (Standards - 29 CFR) - Table of Contents

Back to Top www.osha.gov

Contact Us | Freedom of Information Act | Information Quality | Customer Survey
Privacy and Security Statement | Disclaimers

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210