



THE SECRETARY OF THE NAVY  
WASHINGTON, D.C. 20350-1000

APR 25 2007

Scott J. Bloch, Special Counsel  
U.S. Office of Special Counsel  
1730 M Street, N.W., Suite 300  
Washington, DC 20036-4505

Dear Mr. Bloch:

Thank you for your letter requesting an investigation of home-made cooling vests alleged to be a danger to worker safety and to be manufactured from stolen government property at the Pearl Harbor Naval Shipyard, Hawaii (PHNS) (Office of Special Counsel (OSC) File No. DI-06-2424).

The Naval Inspector General led an inquiry that did not substantiate the allegations made to OSC, but did find that workers were using home-made cooling vests without first submitting them to the PHNS Safety Department for approval, in violation of PHNS instructions. The investigation resulted in a project to redesign cooling vests that have now been issued to workers as government-furnished protective equipment to be worn in hot, confined spaces.

PHNS has identified four supervisors and one worker who may be disciplined for their failure to comply with PHNS Safety Requirements, but has not yet proposed any specific disciplinary action. I have directed the Naval Inspector General to inform you of the decisions when they are made.

I am enclosing two versions of the report of investigation. The first contains names of witnesses and is for your official use. I understand that you will provide a copy of this version to the Complainant, the President, and the House and Senate Armed Services Committees for review. The second version excludes the names of witnesses and is suitable for release to the general public. As has been the case with other reports that the Department has provided to your office since September 11, 2001, I request that you make only this redacted version available to members of the public.

Again, thank you for bringing this matter to our attention. If I may be of any further assistance, please let me know at your earliest convenience.

Sincerely,

A handwritten signature in cursive script, appearing to read "Donald C. Winter".

Donald C. Winter

**Office of the Naval Inspector General**

OSC Case Control Number DI-06-2424  
NAVINGEN Case Control Number 20060904  
NAVSEA Case Control Number 060063L

**Report of Investigation**

**20 April 2007**

Subj: ALLEGED THEFT AND SALE OF UNSAFE COOLING VESTS TO  
EMPLOYEES AT NAVAL SHIPYARD AND INTERMEDIATE MAINTENANCE  
FACILITY, PEARL HARBOR, HAWAII

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**Preliminary Statement**

1. This report is issued pursuant to a 20 October 2006 Office of Special Counsel (OSC) letter tasking the Secretary of the Navy (SECNAV) to conduct an investigation under 5 USC 1213.
2. OSC is an independent federal agency whose primary mission is to safeguard the merit system by protecting federal employees and applicants from prohibited personnel practices. OSC also serves as a channel for federal workers to make allegations of: violations of law; gross mismanagement or waste of funds; abuse of authority; and a substantial and specific danger to the public health and safety.
3. Reports of investigations conducted pursuant to 5 USC 1213 must include: (1) a summary of the information for 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 changes in agency rules, regulations or practices, the restoration of employment to an aggrieved employee, disciplinary action, and referrals to the Attorney General of evidence of criminal violations.

**Information leading to the OSC Tasking**

4. Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNS), Pearl Harbor, Hawaii is a large industrial complex with approximately 4,800 skilled civilian and military tradesmen (artisans), planners, support codes and engineers experienced in the depot level maintenance and repair of Naval vessels and their components. PHNS is responsible for submarine

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and surface craft maintenance, engineering and logistic support. Within PHNS, Service Shop Code 971 (previously named 964AP and hereafter Code 971) is responsible for depot and fleet repair and maintenance of protective coatings, specifically inside submarine tanks such as the Main Ballast Tank, Potable Water Tank and Sanitary Tank. PHNS is a subordinate command with dual reporting responsibility to Commander Pacific Fleet (COMPACFLT) as the Major Claimant and to Commander, Naval Sea Systems Command (NAVSEA) as the Operator.

5. The OSC tasking stems from a complaint it received on 28 July 2006. OSC identified Mr. Antonio Vierra, WG-4102-05, a former Code 971 Painter Helper, as the person who provided OSC information leading it to task this investigation. OSC said Mr. Vierra, hereinafter referred to as Complainant, consented to the release of his name.

6. The OSC tasking letter states Complainant alleged the theft of government material and fabrication of cooling vests using the stolen material constituted a violation of law and resulted in a substantial and specific danger to public safety because of the potential for injury to personnel utilizing the device during maintenance of Navy submarines. The OSC tasking letter states Complainant identified a Painter in PHNS Code 971, (hereafter referred to as Subject), as the person who was making and selling the vests.

7. OSC provided the following general summary of Complainant's allegation:

*According to [Complainant], the painters in Shop 64 are responsible for painting and sandblasting the interiors of main ballast tanks (MBTs) on nuclear submarines. The MBTs allow submarines to ascend and descend in the water: the MBTs fill with water to submerge the submarine, or fill with pressurized air to allow the submarine to surface. According to [Complainant], the temperatures within the MBTs often reach uncomfortably high levels. Complainant states that [Subject] sells cooling vests to painters, which are designed to pump cool air into the user's coveralls.*

*According to [Complainant], management prohibits the use of cooling vests because the vests are unsafe. [Complainant] explains that the vests are attached to an air pump; if a vest fills with too much air, it can explode and the hose may spring loose. [Complainant] contends that he has been personally injured on two separate occasions when hoses*

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*from coworkers' cooling vests came loose and struck him in the face. [Complainant] also advises that it is possible for a vest to over-inflate, trapping a worker in one of the tanks, or a vest could get snagged on a piece of equipment and accidentally trap or hang a worker.*

*In addition, [Complainant] alleges that [Subject] assembles the cooling vests out of government property he has stolen from the base's supply center. The materials used to assemble the vests include plastic piping, hoses, connectors, and valves. [Complainant] knows that the equipment belongs to the government because it is marked with government bar codes. [Complainant] admits that he personally purchased a vest from [Subject] in October 2005. He estimates that [Subject] has sold a total of approximately 25 cooling vests to Shipyard employees, at prices ranging from \$45 to \$125 per vest. [Complainant] maintains that he reported the allegations to his supervisors; however, they failed to take any corrective or disciplinary action.*

8. An attachment to the tasking letter provides additional details. In it, OSC says Complainant, a painter, started working at PHNS in October 2005 and was terminated from his position in July 2006.

#### **Description of Conduct of Investigation**

9. On 24 October 2006, a NAVINSGEN Hotline Manager, forwarded a copy of the OSC complaint for review to COMPACFLT. COMPACFLT determined the alleged shipyard subject was in the NAVSEA administrative chain of command and concluded the investigation should be conducted by NAVSEA. COMPACFLT returned the complaint to NAVINSGEN and, on 9 November 2006, NAVINSGEN referred the complaint to NAVSEA. NAVSEA reviewed the documentation and immediately contacted the PHNS Command Evaluation and Review Office, on 13 November 2006 to ascertain whether there was an immediate danger to public safety as alleged by the Complainant.

10. On 14 November 2006, the Deputy Inspector General of NAVSEAINSGEN provided the official tasking letter for PHNS to conduct an investigation into the allegations of theft and improper sale of unsafe working gear.

11. On 14 November 2006, a PHNS Command Evaluation and Review Office Lead Investigator (Lead Investigator) reviewed the matter with the PHNS Executive Director. They recognized the allegations were similar to those Complainant made to PHNS on 10

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May 2006. The Executive Director immediately tasked the PHNS Occupational Safety Health and Environment (OSHE) Department, Code 106 (hereafter OSHE Department), to investigate the allegations.

12. On 16 November 2006, a PHNS Supervisory Occupational Safety and Health Manager (the OSH Manager) conducted an initial evaluation of the cooling vest Complainant had given a Naval Criminal Investigative Service (NCIS) Special Agent during a 10 May 2006 meeting.<sup>1</sup> The OSH Manager found the cooling vest was of homemade design not approved for use by the OSHE Department and thought it had the "potential" of minor design problems.<sup>2</sup> His record review that day revealed no reported injuries, incidents, or accidents associated with cooling vests.

13. Between 16 November and 30 November 2006, The OSH Manager personally conducted worksite surveillances to determine if cooling vests were being used. He did not observe any cooling vests in operation.

14. On 30 November 2006, the Lead Investigator established a team of technical experts to assist with the investigation. The PHNS Commanding Officer issued an investigative tasking letter appointing a Supervisory Program Manager (Program Manager) to investigate the circumstances alleged in the OSC tasking letter. The Commanding Officer tasked PHNS Counsel to provide legal advice if needed.

15. On 30 November 2006, the Program Manager contacted an investigator at the Criminal Investigations Division (CID), Navy Region, Hawaii (CID Investigator) to discuss the theft investigation CID had opened after Complainant met with NCIS, and to coordinate the interview process among the shipyard witnesses. CID invited the Program Manager to participate in the scheduled interviews as a technical expert for shipyard operations. At that point, for all practical purposes, the two investigations merged into one.

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<sup>1</sup> At that meeting, Complainant alleged he had purchased the vest from Subject, who was using government property to make them.

<sup>2</sup> The end of the hose was plugged with a bolt secured using a radiator type hose clamp. If connected to the tool air supply system, air pressure going through the hose could be as much as 90-120 psi. If connected to the breathing air supply system, the air pressure varies, but generally is no more than 30 psi. If the clamp was not routinely inspected for integrity and tightness, the bolt could be ejected during use.

16. On 30 November 2006, the CID Investigator and the Program Manager (the investigators) received information from NCIS confirming Subject was the manufacturer of the cooling vest that Complainant gave NCIS.

17. On 1 December 2006, the investigators commenced interviews of 20 shipyard personnel consisting of Painters (Artisans), Shop Supervisors, and OSHE professionals. Initial interviews were conducted at Criminal Investigations Division (CID), Navy Region, Hawaii, Building 278. Follow-up interviews were conducted in the field. The investigators also reviewed existing rules and regulations related to this investigation. A list of these documents appears at the end of this report.

18. On 4 December 2006, the investigators concluded, based on interviews, work site observations, and collection of physical evidence, that cooling vests were used throughout Code 971, particularly by Painters/Blasters in Code 64, a component of Code 971, while painting in confined workspaces such as submarine main ballast tanks. It was also observed and verified that the cooling vests were of makeshift manufacture and not approved for use by the OSHE Department.

19. On 5 December 2006, the investigators interviewed Subject. The CID investigator informed Subject he was suspected of theft and read him his rights. Subject waived representation and consented to a search of his workplace, automobile, and home.

20. During his interview, Subject stated he had manufactured and distributed approximately 8 cooling vests, repaired approximately 10 others, and was in receipt of back orders for approximately 10 additional cooling vests.

21. On 5 December 2006, CID agents, led by the CID Investigator and observed by the Program Manager, conducted a search of Subject's automobile, work area lockers, and home. The search produced no evidence that Subject had stolen government equipment.

22. On 5 December 2006, the Program Manager informed the OSHE Department Head, and a PHNS Code 971 Superintendent that there was sufficient information to believe several cooling vests manufactured by Subject were still in use and further evaluation of the potential safety risk they posed would be required.

23. On 5 December 2006, the Code 971 Superintendent recalled all cooling devices from waterfront work areas and restricted their further use until the OSHE Department could conduct an

engineering analysis of the manufacture and proper use of the device.

24. The recall resulted in the confiscation of 51 cooling devices (vests and pipes) on 5 December 2006. After collection, a PHNS Public Affairs Representative, photographed all of the cooling devices and cataloged them in an Excel spreadsheet for future reference.

25. The OSH Manager evaluated six of the vests collected during the recall carefully, and found several were of sound design and suitable for approval. His analysis indicated that although these vests were of homemade design and manufacture, they posed only a minimal and insignificant risk to personnel or property. He found one vest design that was particularly good and which could be used on a regular basis with only minor modifications. He noted, however, that while these designs were acceptable, the vests had not been submitted for OSHE Department approval before being used.

26. The OSH Manager found other vests to be of poor design because their clamping devices were not ones the OSHE Department had found acceptable in other applications. These vests had the potential to eject end caps or bolts under pressure, and in some cases it appeared the hoses could flap around and strike someone. There was also the potential that when performing sandblasting operations, the air coming out of a hose after a bolt had ejected could blow sand on someone. On some vests, the valve was located in a position such that body movement would permit inadvertent flow setting changes. The OSH Manager found a number of the vests were dirty and not properly maintained; clamping devices were loose and valves would not close completely.

27. The OSH Manager assigned a Risk Assessment Code (RAC) of 4 ("minor") to the vests collected during the recall in accordance with OPNAVINST 5100.23G, the Navy Occupational Safety and Health Program Manual dated 30 December 2005. He noted that many of his concerns related to maintenance, which would have been addressed through the equipment tracking system PHNS uses to ensure periodic inspection and maintenance of equipment approved for use by the OSHE Department.<sup>3</sup>

28. The OSH Manager concluded the use of the homemade cooling vests he had examined was limited to the painters and blasters

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<sup>3</sup> See paragraphs 50-54 for a discussion of risk assessment codes.

in Code 971. He then reviewed PHNS mishap records and injury reports compiled from 2003 through 2006 and found no reported incidents associated with use of cooling vests.

29. On 5 December 2006, the OSH Manager's supervisor contacted his counterparts at the other three NAVSEA Naval shipyards to inform them of initial findings concerning widespread use of cooling vests by Painters within Code 971, and advised them to check their respective shops for use of similar devices to determine if there was a potential safety risk. Portsmouth and Puget Sound Naval Shipyards indicated they did not use cooling vests because their moderate temperatures rendered them unnecessary. Norfolk Naval Shipyard indicated its personnel used an approved commercially manufactured cooling device.

30. On 5 February 2007, after reviewing the findings of the criminal investigation pertaining to theft of government property, a Special Assistant United States Attorney advised the CID Investigator that Subject would not be prosecuted, citing "lack of crime" as the reason. On 13 February 2007, the CID Investigator prepared a closing memo for the criminal investigation CID opened in May, her supervisor approved it, and that investigation was closed.

31. The Program Manager and Lead Investigator used information in the OSC tasking letter, data provided by CID, and information gained from the joint interviews to formulate two allegations for this report which, as rephrased by NAVINSGEN staff, are:

Allegation 1: That Subject caused a substantial and specific danger to PHNS employees by fabricating and distributing homemade cooling vests for their use when working in hot confined spaces aboard submarines where there is a risk of heat stress.

Allegation 2: That Subject stole fittings and valves from PHNS and used them to fabricate cooling vests he sold to other shipyard employees.

32. The investigators concluded neither allegation should be substantiated. The OSH Manager's analysis revealed the potential risk or danger to workers was only minor. Applicable regulations do not prohibit the fabrication or sale of cooling vests. The evidence developed by the investigators failed to establish Subject used stolen government property to fabricate cooling vests and did tend to support his assertion that he used materials purchased from private hardware vendors.

33. Upon reviewing the evidence, NAVINSGEN staff decided to formulate a third allegation:

Allegation 3: That PHNS Code 971 painters improperly used cooling vests that had not been approved by the OSHE Department.

34. This allegation is substantiated.

### **Summary of Evidence Obtained During Investigation**

#### **Findings**

#### **Cooling Vest Description and Applicable Standards**

35. The design of a cooling vest is to provide engineering control of heat stress. NAVSHIPYDPEARLINST 5100.1A CH-149, CONTROL OF HEAT STRESS: PHNS Safety and Health Supplement No. 0410A dated 1 July 1991 (hereafter Supplement 0410A), establishes policy and procedures to prevent adverse health effects to personnel due to heat stress through the evaluation and control of potential heat stress conditions.

36. Supplement 0410A authorizes the use of engineering controls and air cooled vests that have been approved by the OSHE Department.

37. Cooling vests operate on the principle that increased air-flow, decreased air temperature and humidity will provide a comfortable work environment based on a prescribed permissible exposure duration (PED) calculated to provide a margin of safety for the employee. Calculations consider such variables as individual metabolism, workload, physical conditions, clothing, temperature, humidity and air movement. Supplement 0410A details use of the PED in determining heat stress environments.

38. Cooling vests are intended to use air supplied by the shipyard breathing air system (BAS).<sup>4</sup> PHNS controls the use of breathing air through NAVSHIPYDPEARLINST 5100.1A CH-167, BREATHING AIR SYSTEMS: PHNS Safety Supplement No. 0113F, dated 2 June 1995 (hereafter Supplement 0113F).

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<sup>4</sup> Approved cooling vests at PHNS use fittings designed to connect only into the BAS. Some homemade vests collected during the recall had fittings that were designed to connect to the higher pressure tool air system (up to 120 psi) but not to the BAS, since the size of the two fittings are different so they may not inadvertently be connected to the wrong air supply system.

39. Supplement 0113F authorizes the use of BAS for cooling vest operation if approved by the OSHE Department. It addresses in detail the need to control and maintain the condition of breathing air systems through an accountability process that includes maintaining a list of equipment, routine inspection and maintenance and recall capability. Equipment and tools managed under this program are the under the cognizance of the Tool Shop, Code 906.

40. Supplement 0113F details that PHNS Shop 906 is responsible for the procurement, cleaning, assembly, and maintenance of hoses, devices and respiratory equipment under their custody. The cooling vests manufactured by Subject and others were not inventoried within the Shop 906 equipment management system that The OSH Manager referred to in paragraph 27 above.

41. It was observed and verified through interviews and collection of physical evidence that the cooling vests in question are of makeshift manufacture (homemade), had not been approved for use by the OSHE Department and had not been not entered into the shipyard maintenance and tracking system. Additionally, the cooling vests are not managed as part of the breathing air supply system.

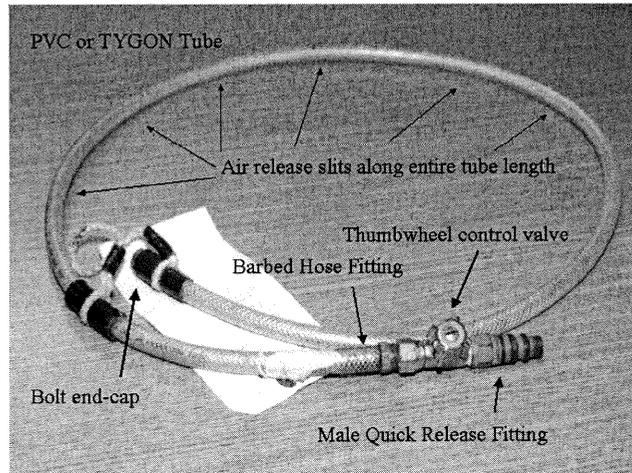
42. Cooling devices collected during the shop recall were constructed from various types of material. There were combinations of both government owned material (air fittings and/or valves) and material commonly procured from local hardware stores. The cooling devices physically inspected by the Program Manager and the OSH Manager fall into three basic categories of construction depicted in Figures 1, 2, and 3.

43. The first category, depicted in Figure 1, is a cooling vest manufactured from a single tube, constructed of  $\frac{1}{4}$  inch inside diameter, PVC or TYGON tube with small slits manually cut through the tube to allow for air release. The number of slits and spacing varied greatly among the devices collected.

44. One end of the tube connects to a barbed hose fitting attached to a thumbwheel control valve that, in turn, is attached to a quick release fitting designed to connect only to the BAS. The thumbwheel is used to control the volume of air running through the tube. The other end of the tube is plugged with a bolt used as an end cap. There are no clamping devices, either crimp or screw type (such as radiator hose clamps), to hold the bolt in the end of the tube or secure it to the barbed fitting. Some vests, like the one pictured, used tape to hold the bolt end cap in place.

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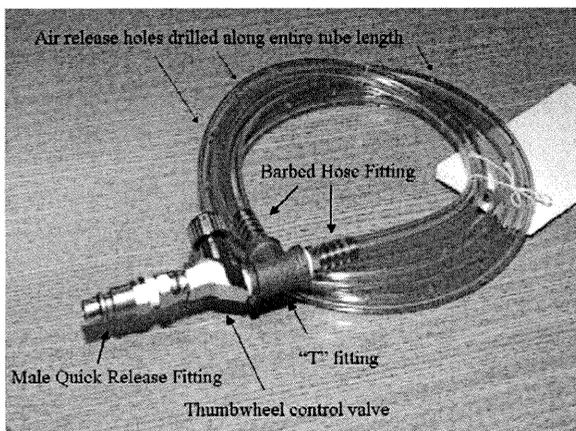
45. The cooling tube is normally worn under protective clothing such as TYVEC, SARANEX or coveralls. It is draped "bandanna" fashion across one shoulder, crossing the body in front of the chest and across the back then connected with quick release fittings to an air inlet supply line located on the opposite hip.



**Figure 1. Cooling Vest with Thumbwheel control valve - air release slits**

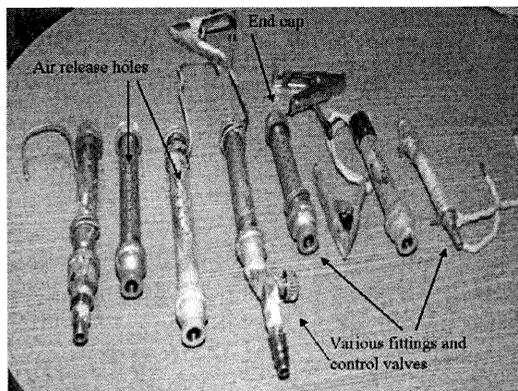
46. The second category, depicted in Figure 2, is a cooling vest manufactured from a single tube, constructed of  $\frac{1}{4}$  inch inside diameter, PVC or TYGON tube with small holes drilled between 1 and 2 inches on center along the length of the tube to allow for air release. The number of holes and spacing varied greatly among the devices collected. Both ends of the tube connect to a "tee-fitting" that is attached to a thumbwheel control valve, which, in turn, attaches to a quick release fitting designed to connect to the BAS. This closed loop design avoids the use of a bolt end cap, but still lacks clamping devices to prevent the hose from detaching from the tee-fitting when under pressure. In the opinion of the investigators, the drilled holes were superior to the slits used in the first category of vests because they were less likely to tear.

47. This cooling vest also is normally worn under protective clothing such as TYVEC, SARANEX or coveralls. It is draped "bandanna" fashion across one shoulder, crossing the body in front of the chest and across the back then connected with quick release fittings to an air inlet supply line located on the opposite hip.



**Figure 2. Cooling Vest with Thumbwheel control valve - air release holes**

48. The third category, depicted in Figure 3, consists of several different cooling tubes constructed of 1/2 inch galvanized pipe. The pipe section is between 6 and 12 inches in length. One end of the pipe is closed with a threaded pipe cap and the other end is equipped with a threaded male quick release air inlet fitting. There are 1/16 inch holes drilled around the circumference of the pipe. The holes run the entire length of the pipe. Some cooling pipes were equipped with hanging straps to affix to personal clothing or a stationary object. According to witnesses, this type of device usually is used for general area air movement in a workspace and seldom is worn against the body. The threads on the ends of the pipe help ensure the end caps remain securely attached under air pressure.



**Figure 3. Cooling Pipes with air release holes**

49. It should be noted that several of the cooling vests collected as physical evidence had the valves and fittings removed. The investigator was unable to determine if all of the cooling vests were originally equipped with air flow control

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valves as they were missing at the time of inspection. When questioned about the missing components, workers stated that fittings and valves were difficult to procure and served multiple uses as standard fittings for portable tools such as grinders, needle guns and sanding machines used for removal of coatings such as paint.

**Risk Assessment Codes**

50. Navy Safety and Occupational Health (SOH) Program Manual OPNAVINST 5100.23G dated 30 December 2005, section 1202, Hazard Abatement Processing and Tracking (hereafter OPNAVINST 5100.23G), describes the process and procedure for conducting Hazard Assessments.

51. OPNAVINST 5100.23G describes a process to express a degree of risk, known as a Risk Assessment Code (RAC), based on the comparison of the severity of an event to the probability of its occurrence. There are five RAC levels: (1) critical; (2) serious; (3) moderate; (4) minor; (5) negligible.

52. OPNAVINST 5100.23G divides severity into four categories: catastrophic (may cause death); critical (may cause severe injury or severe occupational illness); marginal (may cause minor injury or minor occupational illness); or negligible (probably would not affect personnel safety of health but is nevertheless in violation of a Navy OSH standard).

53. OPNAVINST 5100.23G divides probability into four subcategories: likely to occur immediately; probably will occur in time; possible to occur in time; unlikely to occur.

54. The intersection of "hazard severity" and "mishap probability" produces a RAC level, as shown in this table:

<b>Mishap Probability</b>				
<b>Hazard Severity</b>	<b>Likely</b>	<b>Probable</b>	<b>Possible</b>	<b>Unlikely</b>
<b>Catastrophic</b>	1	1	2	3
<b>Critical</b>	1	2	3	4
<b>Marginal</b>	2	3	4	5
<b>Negligible</b>	3	4	5	5

**Physical Security and Loss Prevention Applicable Standard**

55. NAVSHIPYD&IMFPEARLINST 5530.1C : PHYSICAL SECURITY AND LOSS PREVENTION, Chapter 6, MATERIAL CONTROL, dated 17 October 2001, (hereafter 5530.1C) establishes a requirement for material control:

Section 0601: Government material/property regardless of condition or future disposition remains the property of the government until disposed of through proper channels. Removal of such property, to include removal from disposal sites without proper authority constitutes theft.

Section 0602 (a): Military and civilian personnel assigned to PHNS will not give, sell, loan or trade government property, including scrapped material to another person other than through authorized channels.

Section 0602 (b): The removal of government tools, material, and equipment from PHNS for personal use is prohibited.

56. These provisions are intended to prevent government personnel from taking "trash" or "scrap" material, which has some disposal value to the government, and selling or converting it for personal benefit. Also, from a safety perspective, the provisions are intended to prevent worker on-the-job injury that could result from using defective "salvage" material obtained from scrap piles or salvage bins.

**Complainant Statements**

57. In its letter to SECNAV, OSC provided the general summary of Complainant's allegation that is quoted in paragraph 7 above.

58. On 9 May 2006, a person who identified himself only as "Tony" placed a call to the PHNS Executive Director.<sup>5</sup> During a 45 minute conversation, the caller complained of people selling pirated DVDs, making items for sale using government materials, and other matters pertaining to potentially criminal misconduct. The caller agreed to meet with the Executive Director the next day. He did not mention cooling vests at this time. After the meeting, the Executive Director contacted NCIS to arrange for a Special Agent to be available to interview "Tony."

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<sup>5</sup> Complainant's first name is Antonio.

59. On 10 May 2006, Complainant met with the PHNS Executive Director and Commanding Officer and identified himself to them. Among other things, he told them Subject was making and selling cooling vests from material he obtained from PHNS materials stores and was selling the vests for between \$45 and \$125. Complainant said he had purchased one from Subject and gave it to them.<sup>6</sup> Complainant expressed concern that someone would make a vest from government property and sell it to others for profit. He did not express any concern about cooling vest safety. Near the end of the meeting an NCIS Special Agent joined the group and Complainant agreed to cooperate in a criminal investigation.

60. After the meeting, Complainant went to the NCIS Agent's office, where they discussed a number of issues that might constitute criminal misconduct. Complainant also expressed his concerns about shipyard safety, including safety issues associated with cooling vests. During this conversation, the NCIS agent decided NCIS should open a criminal investigation into some of the more serious matters raised by Complainant, but that an investigation of the cooling vests should be deferred because it could interfere with the investigation of the other matters. This led the opening of a CID investigative case file on the cooling vests, but investigative action of that matter was held in abeyance, and no one told PHNS about the cooling vest safety concerns Complainant raised.

61. During the course of its initial inquiries into the matters raised by Complainant, NCIS learned that Complainant, who started working at PHNS in October 2005, failed to mention some unfavorable information about himself in his employment application. NCIS forwarded that information to the Navy's Central Clearance Adjudication Facility (DONCAF) for review, because a security clearance was a condition of Complainant's employment at PHNS. On 22 June 2006, DONCAF issued a letter stating its intent to deny Subject a final security clearance.

62. In a letter dated 29 June 2006 addressed to the PHNS Commanding Officer, Complainant alleged numerous forms of wrongdoing at the shipyard, including illegal DVD sales. He identified Subject as an individual who "constantly picked on me" and went on to allege, for the first time in writing, that Subject had illegally made and sold cooling vests using

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<sup>6</sup> This is the vest The OSH Manager examined at NCIS offices on 16 November 2006.

government property, stating he had given "a complete vest and sample of Government property" to NCIS.

63. In this letter, Complainant made no allegation that the cooling vests were unsafe, although he said that once he was told to spray a tank with a chemical he thought was dangerous. He did state that he had received threats to his safety, and described how some employees had used high pressure sand blast hoses to "blow down the tank" and hit him in the face and other parts of his body on one occasion. He said he had communicated these threats to the Executive Director, who had transferred him for his safety. After the Executive Director read this letter, he arranged for a second transfer of Complainant to a work unit in which he would feel more comfortable for his safety.

64. Shortly thereafter, on 14 July 2006, PHNS terminated Complainant during his probationary period. The Executive Director explained that Complainant had been hired in October 2005 as a seasonal sandblaster/painter worker and granted an interim security clearance pending a background investigation. After receiving a copy of the 22 June 2006, DONCAF letter stating its intent to deny Subject a final security clearance, PHNS decided to remove Subject from his position at PHNS due to his inability to obtain a final security clearance, a stated condition of employment.<sup>7</sup> Because Complainant was no longer employed at PHNS when the OSC tasking arrived at PHNS, and because the investigators did not think he would have any information to add beyond what he had already told NCIS, they did not interview Complainant for the OSC investigation.

65. At the request of NAVINSGEN, the Program Manager and Lead Investigator interviewed Complainant over the telephone on 27 March 2007. Complainant provided no additional information. When told that the investigators had found no reports of mishaps or injury related to use of the cooling vests, Complainant stated that when he told his supervisor about the failure of his own cooling vest, his supervisor told him it would not be appropriate to report the incident because he was using a homemade vest that was not part of the PHNS inventory.

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<sup>7</sup> The removal became effective on 14 July 2006. Complainant appealed the removal to the Merit Systems Protection Board (MSPB), alleging the removal was whistleblower reprisal. MSPB dismissed the complaint for lack of jurisdiction since, as a probationer, Complainant first had to seek redress from OSC.

**OSHE Supervisory Safety Specialist Testimony**

66. During his interviews on 5 December 2006 and 4 January 2007, the OSH Manager said his initial 16 November 2006 cooling vest safety assessment was limited to the single vest Complainant had given NCIS in May. The investigators then asked The OSH Manager to evaluate the cooling vests further based on his professional analysis of all the vests collected during the recall that took place during this inquiry, and to respond to the specific safety allegations Complainant made to OSC.

67. Concerning Complainant's allegation that "management prohibits the use of cooling vests because the vests are unsafe," The OSH Manager said cooling vests are not prohibited and Supplement 0113F authorizes the use of BAS for cooling vest operation if approved by the PHNS OSHE Department. The OSH Manager explained there are several types of cooling devices, ranging from complicated vest designs to simple ice pack designs, that the OSHE Department has approved and PHNS has made available through the shipyard tool issue system. However, he added that the vests he analyzed were not OSHE approved.

68. Concerning the general allegation that "the temperatures within the MBTs often reach uncomfortably high levels," The OSH Manager said that upon request of the shop, PHNS monitors workplace environmental conditions for employee heat stress. Previous monitoring of main ballast tanks indicated acceptable environmental working conditions. The OSH Manager stated that Supplement 0410A establishes policy and procedures to prevent adverse health effects to personnel due to heat stress through the evaluation and control of potential heat stress conditions.<sup>8</sup>

69. The OSH Manager responded to the general allegation that "the vests are attached to an air pump; if a vest fills with too much air, it can explode and the hose may spring loose. [Complainant] contends that he has been personally injured on two separate occasions when hoses from coworkers' cooling vests came loose and struck him in the face. [Complainant] also advises that it is possible for a vest to over-inflate, trapping a worker in one of the tanks, or a vest could get snagged on a piece of equipment and accidentally trap or hang a worker." The OSH Manager explained the cooling vest is not attached to an air pump, but receives air from the shipyard breathing air system.

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<sup>8</sup> Prior to entering MBT, the tanks are cleared by the OSHE Gas Free Technicians. Tank temperatures are annotated on the Gas Free tags that are posted for the duration of work.

He also said the cooling vest is designed to release air (to provide the cooling effect) and not allow the build up of internal pressure. The OSH Manager also pointed out that a vest cannot over-inflate and trap a worker because it is a single tube design not capable of over-inflation. He went on to state that the protective clothing worn by painters is permeable to air and allows for the release of trapped air. The OSH Manager personally reviewed injury reports and mishap data used to record reported injuries and concluded that there were no injuries associated with exploding vests, loose cooling vest lines, or fittings striking workers and causing injury.

70. The OSH Manager said that the conduct of the investigation led to the formation of a "Moonshine" team to initiate a research and development project to seek approval for a new vest design.<sup>9</sup>

71. When informed that interviews conducted with artisans and supervisors of the paint shop indicated a variety of cooling vests have been used for at least 10 years, The OSH Manager said because cooling vests are authorized if approved by the OSHE office, their use would not be an unusual event.

72. When asked to provide his professional opinion about the failure to discover unapproved cooling vests during routine surveillance, the OSH Manager responded that cooling vests are normally worn inside of clothing and not easily detected. He added that there were no previous indicators (such as injury, illness, or mishap) to suggest improper construction or use of cooling vests. He also stated that since the use of authorized cooling vests is allowed, it was not a specific attribute during routine surveillance.

73. The OSH Manager stated that his initial evaluation on 16 November 2006 was based on his physical inspection of one cooling vest and his analysis of mishap, injury, and illness reports and data available to him, which did not provide any indication that the allegations raised a serious safety concern.

74. The OSH Manager went on to state that because cooling vest use is authorized by instruction, his primary concern, and the focus of his initial assessment, was the homemade nature of the device and the risk associated with using hose clamps to secure

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<sup>9</sup> The Moonshine Team is comprised of Union representatives, employees and leadership, with a focus on immediate process improvement designed to help the employees do their jobs better.

the end bolt to the tube because they could allow the bolt to come loose. He added that his personal work place inspections did not turn up any cooling vests, so he assumed their use was limited.

75. The OSH Manager also stated that since there were no reports or other indications of safety related injury, he decided not to alert general shipyard management so that the investigation could proceed without interference. He did, however, conduct a private meeting on 6 December 2006, with Code 971 supervisors, to inform them that an investigation into the use of the cooling vest was ongoing.

76. The OSH Manager stated that prior to meeting with Code 971 supervisors on 6 December 2006, no one in Code 971 had notified him of any issues associated with the manufacture or use of cooling vests.

77. The OSH Manager utilized the guidelines in OPNAVINST 5100.23G, Risk Assessment Code (RAC), to determine the risk of using vests fabricated by Subject was minor. He decided the Severity Code was Category III - Marginal: May cause minor injury or minor occupational illness. He determined the Mishap Probability was Subcategory C - Possible to occur in time.<sup>10</sup>

78. During the interview process and subsequent meetings, the OSH Manager provided technical assistance for specific actions to identify and resolve the allegation of improper use of cooling vests. As a result, research, development and approval of a suitably constructed vest is complete. A more detailed description of this effort is provided in the corrective action section of this report.<sup>11</sup>

79. The OSH Manager stated there was a previous analysis conducted at least 5 years ago that resulted in the approval of several types of cooling vest designs that were made available to the Painters. He said Painters did not like the units because the vests were bulky to wear in confined spaces.<sup>12</sup>

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<sup>10</sup> Refer to paragraphs 50 through 54 for an explanation of these codes.

<sup>11</sup> The Moonshine Team and shop representatives fabricated a cooling vest for field trials and evaluation. The OSH Manager approved the design.

<sup>12</sup> The OSH Manager displayed five different design types and indicated that one design was acceptable. He also indicated the project was never completed because the shop failed to follow through on the original action to request approval.

80. The OSH Manager concluded there was no evidence of deliberate concealment or deception associated with the use of cooling vests. Routine safety, health, and work place monitoring and surveillance did not disclose their use, but this is not an unusual observation since employees normally wear them under protective clothing while working in confined work spaces.

#### **Subject Testimony**

81. Subject was interviewed on 5 December 2006, starting at 0800, by the investigators. The CID investigator informed Subject he was a suspect in a theft investigation and read him his rights. Subject waived representation and agreed to permit a search of his workplace, automobile, and home. At approximately 1000, a Union Steward entered the interview room as Subject's representative at Subject's request.

82. During his interview, Subject stated he had manufactured and distributed approximately 8 cooling vests, repaired approximately 10, and was in receipt of back orders for approximately 10 additional cooling vests.

83. Subject said he did not finish construction of the 10 cooling vests on back order and did not receive money for them. He said he did not fill the orders because his supervisor previously informed him to stop manufacturing until the allegations, originally raised in June 2006, could be resolved.

84. During his interview, Subject acknowledged he received money in exchange for cooling vests, but insisted that he did not "sell" the vests. He said the money he received was to reimburse him for the cost of parts he purchased from a commercial vendor, and for labor.

85. When asked about the price range for his cooling vests, Subject said he was reimbursed between \$25 and \$75 for the manufacturing of each cooling vest depending on complexity and type of components used to manufacture the device.

86. Subject stated he did not utilize government material, time, tools or equipment when manufacturing the cooling vests.

87. Subject informed investigators that he used common plumbing components obtained from Home Depot to make the vests, and provided a single Home Depot receipt detailing a list of general plumbing components similar to the components depicted in

Figures 1 and 2. He also offered the investigator access to his personal charge card records as proof of purchase.<sup>13</sup>

88. When asked about government components visually observed on cooling vests of his manufacture, Subject stated that workers commonly change and swap fittings. He went on to say fittings are readily obtained by shop supervisors and work leaders through the "shop store supply system." He stated that fittings are commonly provided to employees upon request.<sup>14</sup>

89. Subject offered that shipyard components could have been observed on cooling vests he had for repair or modification. However, Subject insisted that the employee who owned the device had customized the cooling vest and restated that he does not provide cooling vests with government fittings.

90. Subject did offer that he has used a single handle air control valve that consists of a ¼ inch ball valve on the air inlet side of the cooling vest. This was verified through the collection of evidence. Two of the 51 cooling devices collected during the recall had this type of valve installed (readily identified by a small flat red-colored handle). He went on to state that the valve was purchased at Home Depot.<sup>15</sup>

91. Subject stated that he manufactured and delivered the cooling vests without the air fittings or valves and that he informed customers they would need to get their own fittings to connect to the air feed line. He went on to say he had no knowledge about employees' personal modifications to cooling vests after his initial delivery.

92. Subject also stated that for some orders, he provided tubing that was not cut or drilled so that customers could modify the device to suit their specific needs.

93. Subject stated that he did not advertise to manufacture cooling vests. He stated that people would approach him to make

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<sup>13</sup> The Program Manager confirmed that the components were readily available in the plumbing and kitchen/bath sections of local hardware stores. Complainant later produced other receipts and there was insufficient cause to investigate his personal credit card statements.

<sup>14</sup> Investigators verified through material procurement records that Subject's supervisor had purchased the fittings found in Subject's assigned tool box.

<sup>15</sup> The Program Manager verified that the fitting was readily available at the local hardware store in the plumbing and kitchen/bath sections.

the cooling vest. He went on to say that employees who requested the vest did so to stay cool while they worked.

94. Subject stated that he originally received a cooling vest from his supervisor, a Code 971 Painter Supervisor (Supervisor 4), approximately two years ago. He went on to state that was the first time he found out about cooling vests. Subject said he believed he was helping the shipyard by making a better system to stay cool.

95. Subject stated that in July of 2006 a PHNS Code 971 General Foreman (Supervisor 2) informed him that Complainant had filed a report that Subject was manufacturing cooling vests. Subject recalled Supervisor 2 directing him to stop the manufacture of additional cooling vests until the issue could be identified and resolved.

96. Subject recalled providing, in June 2006, a statement to Supervisor 2 regarding the manufacture of the cooling vests. Subject stated that in June of 2006, he reported to Supervisor 2 that he was not utilizing government equipment to manufacture the vests. He stated that safety issues concerning the manufacture or use of the cooling vests were not addressed. Subject did not recall having any further discussions with management about the cooling vests.

97. Subject stated that he made his last cooling vest sometime before June 2006 and that he has not manufactured, modified, repaired or delivered a cooling vest since June of 2006.

98. Subject explained in detail that the common air fitting available at Home Depot or other hardware stores would not fit the shipyard system. He stated that the shipyard uses special "industrial" fittings. He also added that he did not supply employees with these special air fittings.

99. The investigators asked Subject if he was aware of the specific requirements of Supplements 0113F and 0410A. Subject stated that he received basic training during respirator trade theory and On-Job Training (OJT) that touched some parts of the instruction. He went on to state that he did not recall the details of the training because he was receiving a lot of information in a short period of time.

100. Subject stated that he was not aware that the vest he personally used was not approved. He said he thought it was approved because his supervisor and other senior mechanics were using the same kind of vest.

101. Subject said he redesigned a vest that was better than the one originally provided to him. He went on to explain that he likes to push production to get the job done and using the vest allows for longer time to work in the tank. He also stated that without the vest, the temperature inside the protective clothing would get too hot for him to do his job well.

102. Subject provided the names of other painters who commonly utilize cooling vests. He said he was not the only individual who manufactured the vests and that he has seen other designs.

103. Subject said no one told him the vest was not authorized. He stated that the safety office and production supervisors conduct routine shipboard inspections and that they did not mention anything about the vest. When asked if the inspectors actually saw the vest, he replied that they were commonly used so they must have. He went on to say that he could not be sure since no one actually approached him about the use of a vest.

104. Subject stated he made no attempt to conceal the use of the cooling vest. He said it was always with his other tools and could have been observed at any time. He did state that the vest was commonly worn inside his outer protective clothing.

105. Subject stated that safety issues are commonly discussed during bi-weekly safety briefings and during the interactive pre-work brief for tank preservation. He added that he did recall a general briefing on heat stress and the importance of remaining cool and staying hydrated by drinking lots of fluids. He did not recall a safety briefing specifically on the use of cooling vests.

106. The valve attached to the vest Complainant gave NCIS and several of the valves confiscated during the shop recall were identified as NSN 4820-00-257-0428 Globe Valves. The value of these valves is \$6.82 each.

107. Procurement records indicate that Subject did not purchase valves (NSN 4820-00-257-0428 Globe Valves) through the shipyard supply system.

108. Procurement records indicate shop supervisors were the primary procurement agents. This is consistent with information divulged during interviews. Service Shop Supervisors purchased between 130 and 160 valves per year. Supervisors stated that valves commonly wear out and get clogged with paint.

109. A search of Subject's automobile, tool lockers, and private residence produced no evidence supporting the allegation of theft of government material.

110. During the permissive search, it was discovered that Subject's assigned tool box contained four each of the fittings/valves (known government material) similar to the type used on the cooling vests. His supervisors verified the fittings are common use items within the shop. This is considered authorized storage since it was within his assigned work area. His supervisor verified that this is a normally accepted practice.

#### **Code 971 Supervisor Testimony**

111. Supervisor 2 said he notified Subject to stop the manufacture of the cooling vests during the initial June 2006 Service Shop investigation into allegations of misconduct made by the Complainant.

112. Supervisor 2 stated the use of cooling vests had been an accepted shop practice for as long as he could remember. He stated that he had used some type of cooling tube design at least 20 years ago.

113. Supervisor 2 said no employee had reported to him an injury or illness associated with use of a cooling vest. When specifically asked about the Complainant's allegation "[Complainant] maintains that he reported the allegations to his supervisors; however, they failed to take any corrective or disciplinary action," he said he was never notified of a safety problem. He went on to say the June 2006 inquiry was focused on alleged theft, not the safety issue, which Complainant did not mention to PHNS.

114. Supervisor 2 said it was common shop practice to provide fittings and valves to employees upon request. He stated that they are readily available from shop stores or catalog order.

115. Another Code 971 General Foreman (Supervisor 1), said using cooling vests was an accepted shop practice. He recalled the OSHE Department looked into the process "sometime back." He remembered there were approved cooling vests available for issue in the tool room. Supervisor 1 said safety problems with the use of the cooling vests were never reported to him.

116. Supervisor 1 said fittings and valves are readily available at shop stores and it was common shop practice to

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provide them to employees upon request. Supervisor 1 stated that he personally provided fittings and valves to his supervisors and work leaders as normal accepted shop practice.

117. A Painter Supervisor (Supervisor 4) said he was aware of cooling vest use as an accepted shop past practice. He said he has provided fittings and valves to his employees as normal shop practice in support of production schedules. He went on to state that the valves and fittings are common use items.

118. A Combined Trades Supervisor (Supervisor 3) said he has provided valves and fittings to employees and the use of the cooling vests has been an accepted shop practice for as long as he could remember.

119. A Sandblaster Supervisor (Supervisor 6) said he was aware of the use of cooling vests and employees had access to valves and fittings to modify their own vest.

120. During his group interview with Code 971 Supervisors, the Program Manager learned they had not asked the OSHE Department to conduct a safety evaluation of the cooling vests. None of the supervisors interviewed could recall a report or complaint into the safety of the cooling vests prior to this investigation. They went on to add that there were no complaints from employees during safety meetings regarding the safe use of cooling vests. They did recall talking about general heat stress conditions that could exist in the main ballast tank when working.

121. Code 971 supervisors stated that main ballast tank work requires pre-work briefings and that cooling vest safety never came up during discussions about the job. None of the supervisors interviewed could recall the Complainant voicing a complaint about the use of cooling vests or the reporting of an injury associated with the use of a cooling vest.

122. During interviews, Service Shop Code 971 supervisory personnel said cooling vests were readily available and had always been used by painters in confined spaces. They also asserted cooling vests were essential to the safety of their personnel to reduce the possibility of heat stress.

123. During their group interview, the supervisors indicated that the hose, clamps, fittings and valves are readily available for distribution to employees upon request. It became evident that virtually every supervisor assigned to the shop had access

to fittings and valves and would commonly make distribution to employees as normal shop practice.

124. During the supervisor group interview, it also became apparent that the employee practice of using salvaged components is a common and accepted shop practice. Supervisor 1 stated it is common shop practice to not waste valuable components and reuse or salvage was an accepted shop practice. He added that it is common for employees to transfer fittings from one portable device to another.

125. Service Shop management personnel offered no evidence to indicate they had taken any corrective action, beyond advising Subject to cease production of the cooling vests, during the initial June 2006 inquiry.

#### **Code 971 Artisan Testimony**

126. Between 29 November 2006 and 15 December 2006, the investigators interviewed the following Code 971, non-supervisory personnel: Painter 1; Painter 2; Painter 4; Painter Worker 1; Painter Worker 2; Painter Worker 3; Painter Trainee 1; Painter Trainee 2; Painter Trainee 3; Painter Trainee 4; Painter Trainee 5; Painter Trainee 6.

127. During his 29 November 2006 interview, Painter Trainee 4 said Subject manufactured cooling vests of the type described in Figure 1. Painter Trainee 4 stated that he owned a cooling vest of similar design provided to him by an unknown individual.

128. Painter Trainee 4 said that over the past two years he has used a cooling vest most of the time he was assigned to paint in a tank. He said he thought the cooling vest design he used was not available in tool issue and the vests in the tool issue room were too big and bulky to use.

129. When asked if he was aware the cooling vest was alleged to be unsafe, he responded that he was not aware of anyone being hurt using a vest. He went on to say he thought use of the cooling vest was important to keep him from overheating in the tank. He said it would be unsafe not to use a cooling vest because it gets really hot when he paints.

130. During discussions about routine work place surveillances, Painter Trainee 4 said he had not attempted to conceal his use of a cooling vest because every painter had one and he believed it was an accepted shop practice. He said he wore the vest

inside his protective clothing. When asked if his supervisor was aware of the use of cooling vests, he said yes.

131. Painter Trainee 4 claimed no specific knowledge about the origin of the materials used to manufacture the cooling vest or where components came from. He did offer that shop personnel readily have access to "scrap" components lying about the work areas. He also offered that his supervisor, Supervisor 3, provided him with fittings to modify his vest.

132. During his 30 November 2006 interview, Painter 2 stated he had purchased a cooling vest from Subject that was similar to the type depicted in Figures 1 and 2. Painter 2 said he has used a cooling vest for the past 4 years when painting inside tanks. He added that it was a common practice within the paint shop.

133. Painter 2 indicated that his cooling vest was not an approved device. He went on to say that the use of the cooling vest was essential to worker safety because it is very effective at reducing heat stress conditions. When asked to clarify what he meant by "not approved," Painter 2 said he knew the design was not the same as the one issued by the tool room.

134. Painter 2 also said he observed several painters modifying their vests by adding fittings. He said it was common practice to exchange fittings between the vest and portable hand tools and many of the painters would work on their own vests.

135. Painter 2 stated that he paid \$60 cash for his device. When asked to verify why he paid \$60 when the range identified by the Complainant was between \$45 and \$125, he stated it was because he requested additional hose to cool his legs. He stated that he thought it was a fair price since the cooling vest contained additional fittings.

136. During his 6 December 2006 interview, Painter 1 said he had used a cooling vest for the past 5 years and that it was common practice for employees to use cooling vests when painting inside tanks. When questioned about the origin of the device, he could only offer hearsay and was not willing to commit to a statement of fact based on his personal observations or knowledge.

137. Painter 1 provided a description of a process to remove hose from an old discarded personal ventilation hood normally used for used for blasting. He stated that the hose already had

fittings and air release holes, so it was common to remove the hose from discarded equipment and reuse it as a cooling vest.

138. Painter 1, Painter 2, Painter 3, Supervisor 4, Painter Worker 3, Painter Trainee 1, Painter Trainee 3, Painter Trainee 4, Painter Trainee 5 and Painter Trainee 6 all stated they had used cooling vests during painting operations and that use of a vest was common.

139. Painter 1, Painter 2, Painter 3, Painter 4, Painter Worker 3, Painter Trainee 1, Painter Trainee 3, Painter Trainee 4, Painter Trainee 5, and Painter Trainee 6 all stated they were not aware of any safety issues or injuries caused by using the cooling vests.

140. Several of the individuals interviewed stated they had seen and used cooling vests made from hoses that originally were a part of a manufactured air-fed hood commonly used by painters. They said that when hoods were discarded as worn out, employees would cut the hose from the discarded device and utilize the hose to manufacture or modify their cooling vest.

141. All of the employees interviewed stated they thought the use of the cooling vests was allowed since every painter had at least one. They went on to state that supervisors and workleaders knew they were being used. They also stated the cooling vests were important to keep them cool and that it would be too hot to work without them.

142. None of the employees could recall receiving specific training on the proper use of the cooling vests. They did recall attending heat stress safety meetings but could not recall specific information provided during the meetings other than to rest often and stay hydrated.

143. During interviews, employees said they raised the subject of not having proper cooling devices with Service Shop management and OSHE personnel on several occasions. However, investigators could find no evidence, such as e-mail, memorandum, correspondence, mishap reports or unsafe-unhealthful condition reports, that would support this claim.

#### **Discussion and Analysis**

144. The evidence developed during this investigation, including Subject's own statements, demonstrates he manufactured and sold cooling vests that were not approved by the OSHE Department before use, resulting in non-compliance with

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Supplements 0113F and 0410A. These instructions do not prohibit the manufacture or sale of cooling vests. Rather, they authorize their use upon OSHE Department approval.<sup>16</sup> Neither Subject nor any others who used homemade cooling vests obtained OSHE Department approval. However, there is no evidence Subject ever represented the vests he made were approved by the OSHE Department. On the contrary, he was not even aware of the requirement.

145. Had Subject and others sought OSHE Department approval of their cooling vests, this would have allowed them to be logged into the PHNS equipment tracking system, which provides a mechanism to ensure they are periodically inspected and properly maintained. Accordingly, the failure to submit the vests for approval also resulted in their non-compliance with the provisions in Supplement 0113F and Supplement 0410A that detail the control, tracking and maintenance of devices required to maintain the safety and reliability of the shipyard BAS. Indeed, this investigation demonstrates that compliance with the requirement to obtain OSHE approval before using a cooling vest is critical to maintaining a system for accountability and maintenance of BAS equipment.

146. An examination of physical evidence and the search of Subject's automobile, tool locker and personal residence failed to demonstrate he took government property for personal use, while testimonial evidence from Subject, his supervisor, and others indicates the government property attached to vests he may have manufactured was readily available to other Shop 971 artisans. Indeed, the testimony shows Supervisors freely gave these fittings to Subject and other artisans to use while working. There is no evidence that vests were used outside Shop 971 for personal benefit, or that other naval shipyards used homemade cooling vests at all. Consequently, we are unable to conclude Subject violated the anti-theft provisions of 5530.1C by attaching government property to the cooling vests he made and including its value in the price he charged for them.

147. The use of homemade cooling vests is widespread among painters and Subject is not the only person who manufactures or uses such cooling vests. Several employees interviewed said they make or modify their own vests from scrap. The intent of

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<sup>16</sup> We do not read these instructions to mean PHNS intends that artisans will manufacture or purchase the cooling vests they use to perform Shipyard work. This practice was a convenient "work around" of the government furnished vests that no one seems to have wanted to use.

5530.1C is to prevent use of scrap or salvaged material because it may be dangerous. However, because supervisors condoned the use of scrap, we cannot conclude workers were acting "without proper authority" or not using "authorized channels" when they incorporated scrap or salvage material into vests.

148. Based on witness testimony from supervisors and artisans, cooling vests of varied design and construction have been in use without OSHE Department approval for at least 10 to 15 years. The practice of allowing the use of unapproved cooling vests resulted in non-compliance with Supplement 0113F and Supplement 0410A.

149. Homemade cooling vests are not an acceptable substitute for approved Personal Protective Equipment (PPE). Even though the OSH Manager categorized the risk associated with the homemade cooling vests as "minor," there still remained a potential for injury during use. The fact that PHNS has no record of vest related injuries does not completely prove there were none. The OSH Manager suggested that if an artisan was injured upon loss of an end cap on their homemade vest, that person may have been reluctant to bring the injury to management attention.

150. However, it is important to note that while The OSH Manager expressed concerns about the possibility of injury should a cooling vest not be properly maintained, he refuted all of the reasons Complainant gave to support his argument that the homemade cooling vests were unsafe. Specifically, a vest cannot over-inflate and trap a worker in a tank; it is worn under protective clothing and cannot get snagged on a piece of equipment; the vests are not attached to an air pump; cooling vests are designed to release air through holes or slits in the tubing and do not allow the build-up of internal pressure; and the permeable nature of the clothing worn over the vest also allows for the release of air coming out of the vest. We agree with his assessment that the risk of injury that may result upon loss of an end cap while pressurized air is running through a vest is minor, justifying only a Level 4 Risk Assessment Code.

151. We find the artisans and supervisors knew the homemade cooling vests they used were not approved by the OSHE Department. In particular, Code 971 Supervisors knew of the manufacture and use of cooling vests, had used homemade cooling vests themselves, and had offered them to subordinate employees. But for the information provided by Complainant leading to this investigation, it is likely this practice would have continued, and supervisors would have continued to violate safety

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procedures and approval processes that protect PHNS personnel from injury.

152. It is primarily a management responsibility to ensure personnel are trained to the requirements and understand shipyard instructions that impact their work operations. It is also a requirement that management provide an opportunity for employee feedback to report potential safety issues. During interviews, it was evident that Service Shop employees and supervisory personnel were not aware of the specific requirements concerning cooling vest manufacture and use.<sup>17</sup>

153. It is also a management responsibility to ensure their subordinates have and use appropriate protective equipment. Shop supervisors failed to identify homemade cooling vests as a potential safety issue requiring evaluation of the components used to manufacture them. The evidence in this case suggests Code 971 supervisors and artisans found it was more convenient to manufacture homemade cooling vests at their own expense than to go through the process required to seek OSHE Department approval of a vest that then would be manufactured at government expense and made available to workers for their use.

154. When asked about corrective actions, supervisory personnel offered no valid reason to explain why they did not take immediate action to rectify the situation prior to receipt of the OSC tasking letter raising the question of safety. Supervisor statements taken during the interview process indicated they believed use of cooling vests to be an accepted past practice, which misses the point completely. The use of cooling vests is not the issue, it is the use of unapproved homemade cooling vests that creates the problem.

### **Conclusion**

155. The allegation that Subject caused a substantial and specific danger to PHNS employees by fabricating and distributing homemade cooling vests for their use when working in hot confined spaces aboard submarines where there is a risk of heat stress is not substantiated.

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<sup>17</sup> Service shop personnel receive education in Trade Theory and Skills that is reinforced through On-Job-Training. Supplemental training is also provided through a multitude of media normally used for this purpose, such as briefings, classroom study, work site safety meetings and pre-work briefings.

156. The allegation that Subject stole fittings and valves from PHNS and used them to fabricate cooling vests he sold to other shipyard employees is not substantiated.

157. The allegation that PHNS Code 971 painters improperly used cooling vests that had not been approved by the OSHE Department is substantiated.

#### **Listing of Actual/Apparent Violations**

158. Failure to comply with requirements of NAVSHIPYDPEARLINST 5100.1A CH-167, BREATHING AIR SYSTEMS: PHNS Safety Supplement No. 0113F, dated 2 June 1995.

159. Failure to comply with requirements of NAVSHIPYDPEARLINST 5100.1A CH-149, CONTROL OF HEAT STRESS: PHNS Safety and Health Supplement No. 0410A, dated 1 July 1991.

#### **Actions Planned or Taken**

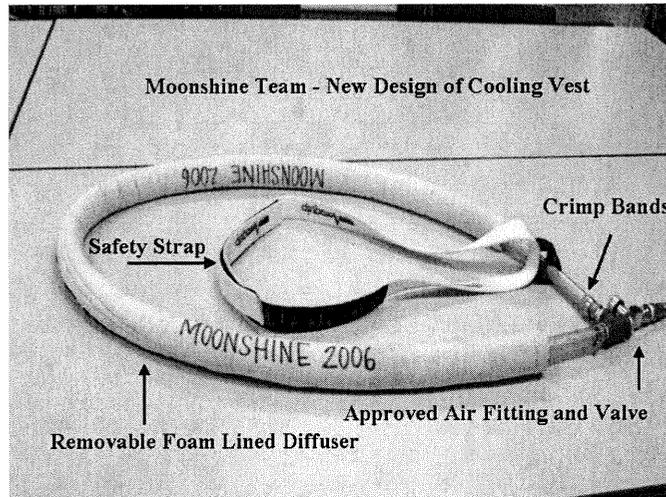
160. When Complainant initially raised questions about the cooling vest to PHNS, he did not mention the safety concerns he presented to NCIS. Consequently, the primary PHNS focus was on the disciplinary aspect of the case and theft of government material. PHNS personnel did not recognize the accepted past shop practice was not in compliance with Supplement 0113F and Supplement 0410A. On 5 December 2006, after receipt of the OSC tasking letter, the Service Shop removed all cooling devices from operation and formed a Moonshine Team comprised of Artisans, Industrial Health Specialists, Safety Specialists, Industrial Engineers, Union Representatives and Service Shop Supervisors to design, evaluate, field test and approve a cooling vest for use while painting inside tanks.

161. On 6 January 2007, a final design (Figure 4) for a cooling vest was approved. Subsequently, it was field-tested with satisfactory results. The cooling vest is currently being used for selected applications to collect data, analyze effectiveness, and evaluate safety and health attributes. It is expected to become available for general use in the near future.

162. The new cooling vest is constructed of Nylon Reinforced Tygon Tubing affixed to a single thumbwheel control valve. A shipyard approved Quick Release Air fitting is provided for a secure hook up to the supply line, crimp bands are used to secure tubing to fittings, and a safety strap is affixed to prevent movement or loss. A notable feature is the removable air diffuser, affixed via a Velcro strap running along the

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length of the tube. This prevents direct airflow against the skin and can be removed and washed. Each employee utilizing the vest will be provided his or her own diffuser, allowing for the cooling vest tube and valve to be shared among workers. The diffuser can be discarded if it becomes contaminated with paint, reducing the cost associated with manufacture of a new tube and valve system.



**Figure 4. Redesigned cooling vest approved by OSHE Department for field testing**

163. After reviewing the findings, PHNS Management Officials identified four supervisors and one employee who may be disciplined for their failure to comply with Supplement 0113F and Supplement 0410A. As of the date of this report, however, disciplinary proposal letters have not yet been issued. PHNS will provide periodic updates to NAVINSGEN for reporting to OSC.

164. The OSHE Department will review the process and procedures annotated in Supplement 0113F and Supplement 0410A for current applicability and revise them as appropriate.

165. Code 971 will evaluate the effectiveness of current training programs to ensure that employees receive critical safety related information.

#### **Observations and Recommendations**

166. The facts of this case suggest that over time cooling vests have fallen into a middle area between "personal tools" owned and used by an individual worker, and PPE, which should be government furnished and controlled for safety reasons. An

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open-end wrench is a personal tool that workers are authorized to purchase and use at work in lieu of "shop" tools as a matter of personal preference, subject to OSHE Department approval. On the other hand, a respirator is always considered PPE, and a worker's purchase and use of a personal respirator would not be approved, for safety reasons. Although commercial cooling vests were purchased by PHNS and offered to workers for their use, similar to PPE, supervisors also allowed the use of homemade cooling vests as if they were personal tools, like wrenches.

167. The remedy PHNS adopted in response to this investigation will make clear to everyone that PHNS now treats cooling vests as PPE. Homemade cooling vests will not be permitted, even if their design and construction is of such quality as to merit OSHE Department approval. By taking the best of the design features exhibited by the recalled homemade vests and improving upon them, the Moonshine Team has done what should have occurred if a supervisor or artisans had presented a homemade vest for consideration under the PHNS beneficial suggestion program. As a result, artisans no longer will have to make, or pay others to make, homemade cooling vests in order to have access to a comfortable, safe product that reduces the risk of heat stress.

168. PHNS is an active member in the U.S Department of Labor Occupational Safety and Health Administration (OSHA), Voluntary Protection Program (VPP). The VPP is designed to supplement enforcement efforts with partners who have demonstrated effective safety and health programs, injury/illness rates lower than the national average and managers and employees who work together to prevent accidents and eliminate hazards. The shipyard has a robust VPP and has provided every employee with a VPP handbook and the opportunity to participate in the program. VPP education is continually communicated to the workforce.

169. A key component to the VPP is the completion of a VPP passport, which contains activities an employee or supervisor can participate in to increase their awareness of safety related issues. The focus is on communication and proactive approach to find problems before they find you.

170. None of the Code 971 employees or supervisors interviewed during this investigation had completed their VPP passport.

171. Investigators noted that the reporting of safety related issues by employees was not encouraged or supported at the Work Leader or 1st line of supervision level and up through the shop management chain. Employees reported that increased pressures to meet production schedules result in more time spent on the

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deck-plate and less time communicating with people "back at the shop." Employees indicated they felt as though they had no mechanism to voice concerns. Several of the apprentice employees (trainees) stated that they did not know how to contact the OSHE office nor were they encouraged to report safety problems. This is an unacceptable practice. PHNS Code 971, Supervision should ensure employees are afforded the right to express concerns.

172. There are sufficient management systems in place to ensure a safe work environment for employees. The Service Shop should focus on a culture change that will result in open and honest communication between employees and supervision. The VPP is a useful tool to create a workplace free from injury and illness. It should be encouraged and supported by shop management.

173. Modernization of process and procedures to improve productivity and ensure a safe work environment should be encouraged. There are common shipyard processes and procedures in place to identify and evaluate process modifications or equipment design through the proper authorizations. The Service Shop should evaluate current process improvement education, development and awareness programs to ensure that employees understand the process.

174. The bulk of individuals interviewed consisted of Painter Trainees with less than 4 years experience. As the interview process progressed, the investigators were continually reminded that the Trainees were not aware of specific procedures associated with Supplement 0113F and Supplement 0410A.

175. We believe it important that PHNS make the supervisors and artisans aware of the findings of this report that relate to their improper acceptance of past practices regarding modification of tools and equipment, use of homemade devices to work around perceived problems with government furnished equipment, and unauthorized use/reuse of government material/equipment. Further, this investigation illustrates that a lack of understanding or knowledge of procedures/policies can readily lead to non-compliance. Fortunately, in this case the failure to adhere to proper procedures for improving cooling devices did not result in any mishaps or injury to personnel or property.

**Appendix A - Reference Documents**

1. NAVSEA LTR RE: NAVY HOTLINE COMPLAINT 20060904 (SEA 060063L)
2. PHNS INDUSTRIAL PROCESS INSTRUCTION, ABRASIVE BLASTING IPI 6300-001C CH-1 DATED 13 DEC 2002
3. PHNS UNIFORM INDUSTRIAL PROCESS INSTRUCTION, HIGH SOLIDS EPOXY PAINTS, PREPARATION AND APPLICATION FOR SUBMARINES TANKS (NON-NUCLEAR) UIPI 6311-460 REV B DATED 29 SEPT 2003
4. NAVSHIPYDPEARLINST 5100.1A CH-149, CONTROL OF HEAT STRESS: PHNS SAFETY AND HEALTH SUPPLEMENT NO. 0410A DATED 1 JULY 1991
5. NAVSHIPYDPEARLINST 5100.1A CH-167, BREATHING AIR SYSTEMS: PHNS SAFETY SUPPLEMENT NO. 0113F DATED 2 JUNE 1995
6. NAVSHIPYD&IMFPEARLINST 5530.1C : PHYSICAL SECURITY AND LOSS PREVENTION, CHAPTER 6, MATERIAL CONTROL, DATED 17 OCTOBER 2001
7. NAVY SAFETY AND OCCUPATIONAL HEALTH (SOH) PROGRAM MANUAL OPNAVINST 5100.23G DATED 30 DECEMBER 2005, SECTION 1202, HAZARD ABATEMENT PROCESSING AND TRACKING, RISK ASSESSMENT CODE (RAC) GUIDELINES

**Appendix B - Witness List**

**Fact Witnesses**

1. PHNS Code 971, Painter, **Subject**. WG-4102-07
2. PHNS **Code 971 Superintendent**, GS-1601-14
3. PHNS Code 971, Combined Trades Supervisor II, **Supervisor 1**, WS-4701-14
4. PHNS Code 971, Combined Trades Supervisor II, **Supervisor 2**, WS-4701-14
5. PHNS Code 971, Combined Trades Supervisor II, **Supervisor 3**, WG-4701-14
6. PHNS Code 971, Painter Supervisor, **Supervisor 4**, WS-4102-09
7. PHNS Code 971, Sandblaster Supervisor, **Supervisor 5**, WS-5423-07
8. PHNS Code 971, Sandblaster Supervisor, **Supervisor 6** WS-5423-07
9. PHNS Code 971, Painter Leader, **Painter Leader**, WL-4102-09
10. PHNS Code 971, Painter, **Painter 1**, WG-4102-09
11. PHNS Code 971, Painter, **Painter 2**, WG-4102-09
12. PHNS Code 971, Painter, **Painter 3**, WG-4102-09
13. PHNS Code 971, Painter Worker, **Union Steward/Painter Worker 1**, WG-4102-07
14. PHNS Code 971, **Painter Worker 2**, WG-4102-07
15. PHNS Code 971, **Painter Worker 3**, WG-4102-07
16. PHNS Code 971, **Painter Trainee 1**, WT-4101- 00
17. PHNS Code 971, **Painter Trainee 2**, WT-4101-00
18. PHNS Code 971, **Painter Trainee 3**, WT-4102-00
19. PHNS Code 971, **Painter Trainee 4**, WT-4101-00
20. PHNS Code 971, **Painter Trainee 5**, WT-4101-00
21. PHNS Code 971, **Painter Trainee 6**, WT-4101-00  
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22. PHNS Supervisory Occupational Safety and Health Manager,  
**the OSH Manager**, GS-0018-14
23. Former PHNS Code 971, Painter Helper, **Complainant**, WG-4102-  
05

**Subject Matter Experts**

1. Investigator, Criminal Investigations Division, **CID Investigator**
2. PHNS, Command Evaluation and Review Office, **Lead Investigator**,  
GS-0510-09
3. PHNS, Supervisory Program Manager, **the Program Manger**, GS-  
0340-14,
4. PHNS Shipyard **Counsel**, GS-0905-15
5. PHNS Supervisory Occupational Safety and Health Manager, **the OSH Manager**, GS-0018-14