



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

February 6, 2008

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

Dear Mr. Bloch,

Thank you for your letter of May 10, 2007, requesting an investigation of the response to a Hazardous Material (HAZMAT) spill at Naval Weapons Station, Seal Beach Detachment, Corona, California, (Office of Special Counsel (OSC) File No. DI-07-0409).

The inquiry led by the Naval Inspector General (NAVINSGEN) determined that the Corona Fire Brigade Chief failed to properly secure the spill site. NAVINSGEN concluded that involved Navy personnel properly permitted HAZMAT qualified personnel from an adjoining prison, the source of the spill, to clean it up. The inquiry also resulted in a finding that the applicable spill response plan is old and needs to be updated.

The Brigade Fire Chief retired while disciplinary action was under consideration. The spill response plan has been updated and reissued. A spill response drill is scheduled to take place this month. Key personnel have received, and will continue to receive, additional emergency response training.

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 their 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 my attention.
If I may be of further assistance, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Donald C. Winter". The signature is fluid and cursive, with the first name "Donald" being the most prominent part.

Donald C. Winter

- Enclosures:
1. For Official Use Copy of Report of Investigation
 2. Public Release Copy of Report of Investigation

Office of the Naval Inspector General

OSC Case Control Number DI-07-0955
NAVINSGEN Case Control Number 20070409
CNIC Case Control Number 07-049

Report of Investigation

9 January 2008

ALLEGED IMPROPER RESPONSE TO DECEMBER 2006 HAZARDOUS
MATERIAL SPILL AT NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT, CORONA, CALIFORNIA

Preliminary Statement

1. This report is issued pursuant to a 10 May 2007 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 referral of evidence of criminal violations to the Attorney General.

Information leading to the OSC Tasking

4. The OSC tasking stems from a complaint alleging that, after chlorine flowed onto Navy property during a hazardous material (HAZMAT) spill originating at an adjoining California prison on

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6 December 2006, Navy personnel did not follow proper HAZMAT safety procedures when securing the Navy site, then permitted improperly trained and equipped prisoners to clean up the liquid that flowed onto Navy property. OSC identified Mr. Lawrence M. Flinton, Sr., a Navy fire fighter and DoD certified HAZMAT technician and incident commander, as the person who provided the information that led OSC to task this investigation. OSC said Mr. Flinton, referred to hereafter as Complainant, consents to the release of his name.

5. OSC provided the following summary of Complainant's allegations:

Specifically, [Complainant] alleged that Navy firefighter employees had not adhered to agency HAZMAT procedures and regulations and had not used approved funding for training to strengthen firefighters' skills. According to [Complainant], in early December 2006, Navy employees improperly permitted a chlorine contaminated HAZMAT site to be cleaned up by approximately 8-10 prisoners from nearby California Rehabilitation Center, Norco, California, instead of requesting an appropriately trained and equipped HAZMAT team to manage the site. Exposure to chlorine may cause chest tightness, blurred vision, nausea and vomiting, and other serious symptoms or side effects. [Complainant] added that the Navy had established a "fire brigade" at the Navy Base and, consequently, according to DoD regulations, Navy brigade firefighters were not permitted to respond to medical or HAZMAT incidents, but properly equipped HAZMAT firefighters should have been contacted to address the environmental and health risks. See National Fire Protection Association (NFPA) 600, as incorporated in... (OPNAVINST) 11320.23F 'Shore Activities Fire Protection and Emergency Service Program'.

6. The OSC tasking letter said the Special Counsel had determined there was a "substantial likelihood" the hazardous substance spilled onto the Navy site was chlorine, an extremely dangerous substance used in chemical warfare during World War I. The OSC finding was based on emails Complainant provided OSC and included in the OSC tasking letter. In them, Complainant asserted the spilled chemical was chlorine even though some emails he received indicate it was liquid sodium hypochlorite, which is much less dangerous than gaseous chlorine. Both chemicals are used to treat drinking water and, about two years before the spill, concerns expressed by Navy contributed to the

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prison's switch from chlorine gas to sodium hypochlorite (commonly referred to as 12.5% bleach) to treat water it shares with Navy.

Naval Weapons Station Seal Beach

7. Naval Weapons Station Seal Beach (hereafter NWS Seal Beach) is located in Seal Beach, CA just south of Los Angeles and adjacent to Long Beach. NWS Seal Beach has a Detachment located near Corona, CA, which is about 45 miles northeast (hereafter Det Corona). The prison where the "chlorine" spill occurred is adjacent to Det Corona.

8. Det Corona and the prison are located on the site of a former luxury resort, constructed in 1928, that included a 5-story hotel overlooking a manmade lake named Norconian, after the nearby town of Norco. Following the 1929 stock market crash, the resort fell into a 12-year decline and eventually was sold to the Navy in December 1941 for use as a naval hospital. The hospital was closed in November 1949 and, following numerous Navy ownership changes, Det Corona was established. Part of the property, including the original hotel, now belongs to the State of California, which uses it as the California Rehabilitation Center (CRC), a medium security correctional facility occasionally referred to as "the prison" in this report.¹

9. Today Det Corona and the prison share the former resort site. Portions of the historical hotel remain and Lake Norconian supports recreational fishing for bluegill, bass and catfish. Other wildlife includes 64 species of birds, ducks and geese. The prison shares a common fence line with Det Corona and maintains two water storage tanks² and a water treatment facility atop a hill overlooking Lake Norconian. The city of Norco supplies chlorinated water for the storage tanks, but the prison also adds "bleach" to the water in the smaller tank to adjust the chlorination level. In accordance with an agreement between California and the Navy, the prison provides potable water to Det Corona and keeps the adjacent Lake Norconian filled using water from wells and the treated water storage facility. Although this water usually sits in a pond to allow the bleach

¹ Taken from "A Tribute to 60 Years of Service to the Navy" published by Naval Surface Warfare Center, Corona Division.

² One tank can hold 1 million gallons, the other 1.5 million gallons.

to dissipate before flowing into the Lake, from time to time Lake Norconian may contain "chlorinated water" from the prison.

10. Witness-1 is the Det Corona Officer-in-Charge (OIC). He reports to the Commanding Officer, NWS Seal Beach. NWS Seal Beach reports to Commander, Navy Region Southwest (CNRSW) who reports to Commander, Navy Installations Command (CNIC). The Det Corona Brigade Fire Chief reports both to Witness-1 and to NWS Seal Beach Fire Department. Witness-1 said Det Corona has approximately 1,000 civilian employees and 5 active duty military personnel in the combined detachment and tenant populations. The number of contract employees varies, but is, on average, about 200 people. Witness-1 visited the site of the spill on December 8, 2006.

11. On 7 March 2005, the Det Corona Fire Department was reclassified by CNIC from a Class A-1 Department to a Class B-1 Brigade (hereafter the Brigade). The official CNRSW organizational statement of the Brigade, published on 13 June 2005, identifies a seven member brigade consisting of one Assistant Chief, two lead fire fighters (or Captains) and four fire fighter/Driver/ Operators. During the time pertinent to this investigation, Witness-2 was the Brigade Fire Chief who visited the site of the spill on 6 and 8 December 2006. Witness-3 was the lead fire fighter who visited the site on 6, 7, and 8 December. Witness-4 was a fire fighter who visited the site on 6 December, and Complainant was a fire fighter who visited the site on 7 and 8 December.

12. The Brigade organizational description indicates there are either two or three members on duty at a time and states:

The primary function of the industrial fire brigade is to perform fire fighting operations prior to the arrival of the fire department or operation of the sprinkler system. The operations cannot exceed the capabilities of the members present to prevent fires that begin from spreading. Additional functions include the provision of advanced first aid assistance and any salvage operations that are necessary during any type of incident, including a fire, and the checking of fire protection and life safety equipment throughout the facility on a daily basis.

13. Under the title "Education, Training, and Drills," the organizational description says that "fire brigade members do

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not perform any response duties they have not been trained and educated to perform." Det Corona has a mutual aid agreement with the City of Norco Fire Department that provides for additional support, including HAZMAT response from Riverside County Fire Department, as needed.

14. The Naval Surface Warfare Center, Corona Division (NSWC Corona), a tenant command of NWS Seal Beach, is located on the grounds of Det Corona. NSWC Corona is within the Naval Sea Systems (NAVSEA) chain of command. Witness-5, a NSWC Corona civil engineer, provides safety and environmental services to Det Corona on matters of concern to NSWC Corona.³ He visited the site of the spill on 6 and 7 December 2006.

15. As discussed below, the investigating officer (hereafter the IO) learned the prison has a 5,000 gallon tank that usually holds between 2,000 and 3,000 gallons of a 12.5% solution of sodium hypochlorite (not chlorine), sold under the trade or common name of "12.5% Trade Industrial Bleach." The prison adds the sodium hypochlorite to the 1 million gallon water tank at a fixed rate of 50 gallons per day to make it potable, a common practice in the water treatment industry. When a line carrying the sodium hypochlorite to the water tank began leaking on the afternoon of December 5, 2006, a prison employee diluted the solution with water and flushed it down a storm drain that surfaced on a hillside above Lake Norconian. Because the prison had no containment area at the storm drain opening, the liquid flowed under a fence onto Det Corona property and toward the Lake. The effort to contain and clean up the liquid in order to prevent environmental damage to the Lake is the subject of this investigation.⁴

³ Witness-1 explained that prior to Regionalization, NAVSEA was responsible for facilities functions at Det Corona and employed Witness-5 as an environmental specialist. After regionalization in 2003, many NAVSEA functions were transferred to CNRSW. Although the environmental function transferred, no environmental personnel transferred with it. Thus, there are no regional environmental representatives at Det Corona, which must rely on part time environmental support from NWS Seal Beach.

⁴Ordinary household bleach is typically a 5% sodium hypochlorite solution. Sodium hypochlorite is manufactured from chlorine, and the two products have a similar odor. Throughout the investigation, witnesses used the words "chlorine," "bleach," and "chlorinated water" to refer to the sodium hypochlorite solution. Some symptoms of exposure to sodium hypochlorite and chlorine are similar, but sodium hypochlorite is a much less dangerous product.

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16. The prison employs a certified HAZMAT Specialist, Witness-6. It has its own fire department, which includes prisoners who are trained and equipped to respond to HAZMAT spills and perform HAZMAT cleanup operations under Witness-6's direction. The prison fire department responds to fires in the local community pursuant to a mutual aid agreement. Witness-7, the prison plant manager who visited the site the day the spill was discovered, also is trained in HAZMAT operations.

Description of Conduct of Investigation

17. On 10 May 2007, Special Counsel Scott J. Bloch sent SECNAV a letter referring Complainant's allegations, OSC File No. DI-07-0955, for investigation pursuant to 5 USC 1213. SECNAV tasked the Office of the Naval Inspector General (NAVINSGEN) to lead the investigation.

18. NAVINSGEN sent the complaint to CNIC, which tasked CNRSW to investigate. CNRSW assigned the NWS Seal Beach IG to be the IO. A Naval Base Ventura County IG investigator assisted from time to time.

19. The IO briefed the NWS Seal Beach Executive Officer and Witness-1, the Det Corona OIC, in May, and started formal interviews in June. She interviewed twenty-five people, including prison and other state officials, in person, by telephone, and by email. The IO interviewed Complainant in person and visited the spill site several times during the investigation. She made two trips to the prison side of the fence line. The IO obtained photographs from witnesses and discussed them in her reports of interviews. Witness-1 provided documentation of incidents related to the HAZMAT spill and escorted the IO to the spill site to take additional photographs. In an attempt to determine the total amount of liquid that may have spilled onto the site, the IO enlisted the aid of a mechanical engineer assigned to the Naval Facilities Engineering Command (NAVFAC), who conducted some experiments for that purpose. At the end of August, the IO provided a draft report for CNIC and NAVINSGEN to review. Det Corona and CNRSW also used the draft to consider whether disciplinary action would be appropriate.

20. NAVINSGEN conducted additional interviews, researched applicable regulations, and searched for qualified HAZMAT subject matter experts to review and comment on the report. NAVINSGEN asked Complainant and subject matter experts from the

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Environmental Protection Agency (EPA) to review the report in late December 2007 and incorporated their comments in early January 2008.

21. Complainant made several allegations to OSC or the IO that were considered, but not examined in detail as part of this investigation. For example, Complainant told OSC he thought Navy fire fighters generally did not adhere to agency HAZMAT procedures and regulations and did not use funding approved for training to strengthen fire fighter skills. Complainant discussed training with the IO and said the fire brigade should receive more of it, but was unable to provide any evidence that brigade members were not trained to the level required to perform their regular duties. Nor was he able to provide any evidence that regulations were violated or that funds approved for training were diverted to other uses. Therefore, with NAVINSGEN concurrence, the IO did not pursue these allegations, which involve policy questions about the fire and HAZMAT response capabilities necessary to support Det Corona.

22. Complainant alleged DoD regulations prohibit fire brigades (as opposed to fire departments) from responding to medical or HAZMAT incidents. Instead, Complainant alleged, only properly equipped HAZMAT fire fighters should address environmental and health risks. When interviewed, Complainant reiterated his belief that Navy regulations and National Fire Protection Association (NFPA) 600, Standard on Industrial Fire Brigades, prohibit a fire brigade from responding to a HAZMAT incident.

23. During her initial analysis, the IO determined NFPA 600 is the Standard for Industrial Fire Brigades and OPNAVINST 11320.23F, Shore Activities Fire Protection and Emergency Service Program, directs equipping and training fire brigades in accordance with it. OPNAVINST 11320.23F does not prohibit fire brigades from performing HAZMAT functions and the IO found no DoD or Navy regulations that prohibit a fire brigade from responding to or dealing with a HAZMAT incident. The only restriction is that responding units must be adequately trained and equipped. Therefore, the IO addressed this issue in Allegation One rather than in a separate allegation.

24. Complainant asserted Witness-3 intentionally provided false information to him and others by stating that someone had performed a 'parts per million' (ppm) test on a sample of the spill and found it to be safe. After learning there was no test, Complainant said this "false statement" had endangered

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him. When interviewed, Complainant asserted Witness-2 and Witness-3 treated him with disrespect during and after the HAZMAT response effort.

25. The IO made every reasonable effort to identify someone who may have picked up and tested some of the liquid found on site in order to determine its composition. She was unsuccessful, but the evidence she obtained suggests no one who might have performed a test thought it was necessary to do so after learning the true nature of the spill. She also obtained evidence indicating the failure to test the liquid did not create a danger to health or safety. This matter is addressed as part of Allegation One. The IO inquired into the allegations of disrespectful conduct in a separate inquiry. She intended to substantiate the allegation against Witness-2, although not against Witness-3, but Complainant entered into a settlement agreement with Navy in connection with another matter that rendered unnecessary further inquiry into those allegations.

26. Based on the evidence she obtained, the IO formulated three allegations. As reworded by NAVINSGEN, they are:

Allegation One: That Navy personnel responding to a December 2006 chemical spill improperly secured the site, in violation of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.

Allegation Two: That Navy personnel improperly permitted prison personnel to clean up the spill, in violation of 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, Subpart E, Hazardous Substance Response.

Allegation Three: That the Det Corona Hazardous Substance Spill Response Plan is out of date and no longer provides adequate guidance for a spill response, in violation of OPNAVINST 5090.1B, Navy Environmental and Natural Resources Program Manual.

27. The IO concluded, and NAVINSGEN agrees, that Allegations One and Three are substantiated, while Allegation Two is not.

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Summary of Evidence Obtained During Investigation

Allegation One

That Navy personnel responding to a December 2006 chemical spill improperly secured the site, in violation of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.

Findings

28. Complainant alleged that Witness-2 and Witness-3 were not qualified to direct the initial on-site assessment and subsequent cleanup. The facts developed by the IO indicate the on-site activities of Complainant, Witness-4, and Witness-5, a NSWC Corona civil engineer, also should be reviewed.

HAZMAT Qualifications

29. At the outset of the investigation, the IO conducted a thorough and detailed record review of brigade personnel HAZMAT qualifications, including training and certification. She then discussed her findings with them. To protect their privacy interests, the detailed information the IO obtained is not included in this report. The following paragraph presents a summary of her findings pertinent to this investigation.

30. Complainant's training history shows he is a certified HAZMAT Incident Commander and a qualified Hazardous Materials Technician. He has also received training in Hazardous Materials Awareness and Hazardous Materials Operations. Witness-2 is not a certified HAZMAT Incident Commander and has no HAZMAT awareness or operations training. Neither Witness-3 nor Witness-4 are certified HAZMAT Incident Commanders, but both are trained in HAZMAT Awareness and HAZMAT Operations. Witness-5 does not have any HAZMAT training or experience.

Tuesday, 5 December 2006

31. Witness-8 is employed at NSWC Corona. He served as the base environmental engineer for a period of time when NSWC Corona was responsible for environmental services at Det Corona. Witness-8 often walks around Lake Norconian at lunch, following an asphalt road that goes around the lake. He walked around the lake on Tuesday, 5 December 2006, around noon, and noticed nothing unusual.

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32. Based on emails and records of conversations between Navy personnel and prison officials, supplemented by interviews conducted by the IO and NAVINSGEN during the investigation, NAVINSGEN finds the sodium hypochlorite leak was located on the discharge side of a pump in a prison equipment room that connected to the sodium hypochlorite tank. The leak started on Tuesday, probably in the afternoon. It flowed onto the floor and into a floor drain connected to a storm drain that ran underground to a point where it emerged at the surface on prison grounds part way down the hill above Lake Norconian. After a prison employee discovered and stopped the leak Wednesday morning, he started running water onto the equipment room floor and into the floor drain to dilute the sodium hypochlorite solution so it would not damage the floor or the drain. Upon emerging from the storm drain, which had no containment area, the mixture of water and sodium hypochlorite crossed a fence separating the prison from Det Corona and flowed down the hill along a dirt road toward the asphalt road surrounding the Lake. The employee flushed water down the floor drain until some time on Wednesday afternoon. Using water to dilute sodium hypochlorite is a recommended safety measure; allowing the solution, even as diluted, to flow into a lake, is not. Although some of the liquid flowed along and across the asphalt road and into a field near Lake Norconian, there is no evidence any liquid ever reached the Lake.

33. Based on evidence developed by the IO and conversations between Counsel, NAVINSGEN, Witness-7, who now is the CRC Chief Engineer, and Witness-6, the CRC Associate HAZMAT Specialist who led the prison cleanup efforts, NAVINSGEN finds the pump is designed to inject 50 gallons of solution into the 1 million gallon water tank over 24 hours. Consequently, approximately 50 gallons of the 12.5% sodium hypochlorite solution leaked onto the floor and down the drain pipe before repairs were made. Experiments conducted at the IO's request during the 2007 investigation indicate that as much as 2,500 gallons of water may have been used to dilute the sodium hypochlorite solution after the leak was discovered.⁵

⁵ Some Navy personnel, including the IO, suspect the leak may have lasted more than one day. This concern is addressed later in the report.

Wednesday, 6 December 2006

34. On Wednesday, 6 December 2007, Witness-8 again took a walk around Lake Norconian on his lunch break, around 1145. While approaching the northwest corner of Lake Norconian, he noticed a very strong chlorine smell⁶ coming from the prison property. He then observed a liquid discharge that appeared to come from the prison water treatment facility on top of the hill above the Lake. The liquid flowed down the hill, onto and across the surface of the paved road. From there, the liquid flowed into a field, causing Witness-8 to worry it would flow into the Lake.

35. When the IO asked Witness-8 to describe the amount of water he saw; he responded:

Well, it wasn't water, it was chlorine, it had to be chlorinated.⁷ Well it was really strong chlorine, you know how like if you get a little bleach on your hands from, like you know, doing your laundry, whatever, it's got that kinda slippery feel. This was really slippery. It was a really strong odor, so it was like an industrial grade of, of chlorine. ...it was a really strong chlorine smell, when you stepped in it, it was really slippery, cause it was all across the road, you had to walk through it. And it was really slippery, so it was really strong grade chlorine. You know you get that chlorine between your fingers that moves a little bit, is a little slippery, this was very slippery.

36. Witness-8 said he did not touch the liquid with his hands, but from stepping in it he could tell it was slippery. He estimated that over a hundred gallons of liquid was running down the hill and opined that the prison was:

...probably flushing...their tank or something and cleaning it out and...they were using some industrial grade chlorine

⁶ Chlorine and sodium hypochlorite have a similar odor, which most people are familiar with from smelling the sodium hypochlorite in household bleach.

⁷ Witness-8's testimony illustrates how witnesses referred to the liquid spill as "chlorine," "chlorinated water," or "bleach" interchangeably, but chlorine exists as a liquid only under pressure. Once pressure is removed, it becomes a heavier-than-air gas that quickly dissipates. The correct term for the chemical involved in this investigation is sodium hypochlorite, which may also be referred to by the trade name "bleach" or "industrial bleach."

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to clean it out, and it was, you know, it was hundreds of gallons, probably, you know, cause it was running down that trail and running down the road, so, you know, it was fairly wide spread, so...it was visible liquid,...it was a lot of liquid on it, so, you know, so it would have probably be over hundreds of gallons.

37. Witness-8 completed his walk and, because he was concerned about the liquid getting into Lake Norconian, tried to reach someone in the Facilities office. When no one answered, he went to see Witness-5, an NSWC Corona civil engineer who is assigned safety and environmental duties, and told him of his concerns. At 1230, after returning to his office, Witness-8 sent an e-mail to Witness-5 and Witness-1, the Det Corona OIC. Referring to his "experience as the former base environmental engineer," Witness-8 stated:

In the case of the chemical discharge from the prison onto our property I would do the following:

Take a sample in a clean container. It is not known what other chemical besides chlorine is in the liquid headed for the lake.

Immediately, contact the prison and talk to their environmental folks, or the business manager if they still do not have anyone. I believe they are legally required to report themselves to the State Water Resources Quality Board (Santa Ana Region).⁸

You may wish to have the Fire Department respond to the hazmat spill.

38. Witness-1 was not on base at the time, but he received the e-mail on his Blackberry at approximately 1235. He immediately forwarded it to Witness-2 and the Det Corona Police Chief, with copies to Witness-9, the new NAVFAC "site manager" for Det Corona, and Witness-10, NWS Seal Beach Environmental Programs and Services Office (EPSO) Installation Program Director, with the message: "Please take a look into this."⁹

⁸ This is a reference to the Santa Ana Regional Water Quality Control Board.

⁹ Witness-1 told NAVINSGEN he emailed Witness-2 because the Fire Brigade is Det Corona's HAZMAT first responder and the Police Chief in case the fire

39. Witness-10 forwarded the e-mail to Witness-11, NWS Seal Beach Air/Water Quality Environmental Engineer and EPSO team member at 1247 with the message: "For your immediate follow-up."

40. Witness-5 works for NSWC Corona, a Det Corona tenant command.¹⁰ When the NSWC Corona safety/environmental officer passed away two years ago, Witness-5 was asked to take over some environmental duties. Witness-5 agreed to do what he could to help, but noted that he does not have training or experience in this area. He does not know of anyone in the Region who is assigned to handle HAZMAT spills.

41. Witness-5 told the IO he is a civil engineer in the Public Works section of NSWC Corona. His department does not have any responsibility for the area of the base where the spill occurred. He responded to Witness-8's report of the spill because he knew Det Corona did not have any Public Works personnel and Witness-5 believed someone needed to try to contain the spill in order to protect the ecosystem of the lake. Witness-5 said his supervisor was not available at the time of the spill, so he acted on his own initiative and informed his supervisor by e-mail later.

42. Witness-5 provided the IO his 7 December 2006 email, which documents his activities on 6 December 2006. Information concerning those activities, recounted below, comes from that email and his interview with the IO. In his emails, Witness-5 referred to the spill as "wastewater."

43. At 1230, Witness-5 received the email from Witness-8 discussing their earlier conversation about the spill. At 1245, Witness-5 tried to contact the prison environmental office to discuss the situation, but could not reach anyone. At 1300, he decided to go to the prison side of the fence, and was able to locate Prison Employee One (PE-1), who operated the prison water

department needed assistance with crowd control. Witness-9 is the NWS Fallbrook site manager, and assists Det Corona on a part time basis. He controls construction equipment that Witness-1 thought might be needed to assist in cleanup efforts. Witness-10 controls environmental assets that could assess the situation and provide technical assistance as needed.

¹⁰ Witness-1 explained that before Regionalization, NSWC Corona "owned" the base and was responsible for facilities management, including safety and environmental matters that are now assigned to Det Corona. Witness-5 continues to assist Det Corona for safety and environmental issues that affect NSWC Corona.

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treatment facility and Prison Employee Two (PE-2), a prison engineer. They told him the leak was sodium hypochlorite, and tried to minimize its amount and significance. Witness-5 got the impression prison management personnel were not helping PE-1 and PE-2 to address the leak, and he told them Navy wanted to contain the liquid to prevent it from reaching Lake Norconian.

44. EPSO is approximately 45 miles from Det Corona and Witness-11, the EPSO environmental engineer, was not able to personally visit the site on Wednesday. He called Witness-5 shortly after Witness-5's 1300 meeting with prison employees PE-1 and PE-2, and maintained telephone contact with Witness-5 throughout the afternoon.

45. Witness-2 said he opened Witness-1's email at approximately 1400 and decided to go to the site to look it over. Witness-2 told the IO he knew the area in question was the location of the prison water tank and where the prison treats water obtained from the city of Norco. He said about 12-18 months earlier, Navy had complained to the prison that it did not appreciate the use of chlorine gas to purify the water, and knew the prison had changed to "liquid chlorine" to treat the water. Witness-2 added that he had carpooled with a prison employee who worked with the water system, so Witness-2 felt he had some knowledge of the water treatment system from discussions with this friend.

46. Witness-2 told the IO that because Witness-8 had not described the site as hazardous, and had not recommended wearing protective equipment, he approached the site as "something that needed to be checked out, but not requiring any breathing apparatus." Witness-2 said he drove to the scene:

...[and] using my nose as...my detection instrument..[it] wasn't burning or offensive to my nose, so I didn't take it to be anything hazardous past that point. Same smell you get at a swimming pool, Jacuzzi. So I assessed the scene like Witness-1 had asked me to and could see that it was water running on to our base from the prison from their water storage treatment area...I spent maybe fifteen minutes at the scene and then drove back to the station and wrote an e-mail to Witness-1 describing the...situation ...as obviously the prison was having some sort of water leakage, not so much the water storage tank, but it appeared to be, I couldn't tell because of the fence line, but obviously they had some water leaking onto our base that was coming from their water storage area and it had a

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strong chlorine smell in it so it was probably the chlorine treatment part of their water storage area that was leaking, I didn't so much take it to be...the water storage tank, more the chlorine treatment shed or building was leaking. And I didn't find it to be hazardous or anything, but I said obviously we had a leak of some chlorinated water onto our base that needed to be checked out.

47. Witness-2 thought it would not be wise to touch the liquid or dirt, but said that using his sense of smell:

I took it to be just some diluted chlorine that was being used to treat the water, even though I didn't touch it or kneel in it, or I didn't put my nose close to it to smell it any more, I was just standing, maybe six feet away from it, that's as close as I got.

48. Witness-2 told the IO he walked up the hill to the spot where the liquid was coming through the fence. At that point he was 10-15 feet away from the water treatment shed where the flow appeared to originate, but he could not see much on the prison side of the fence, and could not see exactly what the problem was. He described the amount of water as a trickle, not a flood, then said trickle was not exactly the right term, either:

You could barely see the water moving on the ground...and the width of the flow was maybe...three inches. It seemed to be channeling. It came down the hillside and then it hit the...there's an asphalt road that goes around the lake, so once it got to the road, then it channeled along the one side of the road. It didn't cross the road until a little ways around the road and then it crossed the road and it was going into the dirt, so maybe a three inch run of water, and it was such little water that you could look at the water and really couldn't even see any movement, so that ... there really wasn't much of a flow.

49. Witness-2 said there were a few places where the water "sat a little more" but he wouldn't call it puddling:

It was trying to drain down to the lake and it crossed the asphalt road and it was, I don't know, fifty feet still from the lake or something, it was nowhere near the lake, but it had crossed that asphalt road and it was starting to seep into the dirt on the other side.

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50. Witness-2 said "the ground was able to soak up the flow, it just wasn't that big a flow." He described the ground as "damp" indicating "you could get muddy, you wouldn't want to step in it" because you wouldn't want to get your shoes muddy.

51. Witness-2 said he did not believe a HAZMAT response team should have been called to the site, but qualified his response with, "but I'm not an expert on what the concentration was...." He said experts would know:

My take on being there and from the reaction of some of these experts, I would say nobody took it to be anything more than some chlorine, maybe it was sodium chlorine. I've heard different stories of what it was technically. Was dissolved in the dirt, and I don't believe any of the experts took it to be anything more than some salty dirt.

52. Witness-2 said that if it had been more, with gaseous or pure liquid chlorine, or he believed it was dangerous for some other reason, then he would call in help. He said if he had felt it was pure chlorine that caused his nose to burn as he drove up, he would have felt it could have been dangerous.¹¹

53. When Witness-2 returned to the fire station, he sent an e-mail to Witness-1, Witness-9, Witness-10 and three others, which read:

Water with chlorine is definitely flowing from the Prison's Water Storage Tank area - is seeping into the ground by the lake - Facilities here needs to contact their water people.

54. Witness-2 thought he had satisfied Witness-1's tasking to "take a look" at the situation. He took no further action until Witness-5 called him at about 1500 to ask for some men to assist in stopping the flow of liquid toward the lake.

55. Witness-9, the NAVFAC Det Corona site manager, said that after he received Witness-2's 6 December e-mail, he called Witness-12, the NAVFAC Facilities Contract Manager at Det Corona, to ask he visit the site and assess the situation.

¹¹ Witness-2 and Witness-5 did not state they saw each other on site, and when asked by NAVINSGEN, Witness-5 did not recall seeing Witness-2. Witness-2 is now retired and was not contacted by NAVINSGEN.

56. Witness-12, now retired, said he met Witness-5 at the site at approximately 1500. He believed the prison staff was conducting a water test and thought Witness-5 had requested "base environmental" conduct an independent water test even though the prison's preliminary information indicated the liquid spill consisted of potable water.

57. At 1510, Witness-3 and Witness-4 arrived and, at Witness-5's request, started shoveling dirt to create a berm to divert water away from the lake. At 1515, Witness-5 called PE-1, who was leaving the office and suggested Witness-5 call PE-2.

58. Witness-12 later called Witness-9 to report the fire brigade had the situation well under control and caution tape was being strung. In an e-mail, Witness-12 reported:

The running water has not yet entered the lake but is being absorbed into the soil. At 1530, Witness-5 told PE-2 the wastewater was still flowing toward the lake. PE-2 said he could not promise the prison would take any action to contain the wastewater flow. Consequently, at 1545, Witness-5 called the prison 24 hour emergency number and reported that wastewater contaminated with a high concentration of chlorine was still flowing toward the lake.

59. At 1557, Witness-11 sent an e-mail to Witness-10, his boss at EPSO, summarizing his phone conversations with Witness-5:

Just finished talking to Witness-5 and PE-1...regarding hyperchloride [sic] solution discharged into...[Lake Norconian]. Following is what I have learned: The hyperchloride [sic] was leaked from chlorine analyzer line to their equipment room floor drain connected to storm drain that discharged to the lake. [Prison] experienced the analyzer problem around 1600, yesterday, 12/05/06 and stopped the leaks around 1300 today, 12/6/06, when Witness-5 visited [prison].¹² Their estimated solution release is

¹² The IO could not confirm the exact starting time and duration of the leak. PE-1, the prison water operator who discovered it, was not available for interview and is no longer employed by the prison. On 6 December, PE-1 and PE-2 told Witness-11 the spill was noticed at approximately 4:00 PM the previous afternoon. Witness-6 and Witness-7 told NAVINSGEN that PE-1 initially told them only 5 gallons had leaked before he stopped it and they were upset when they learned it was more. Witness-7 estimated the leak

about 100 gallons and half of that might end up in the lake.

...I asked Witness-5 to revisit the discharge outfall to the lake to see if the wastewater flow stopped. His report is that the wastewater is still running and [continuing] dumping into the lake.¹³ Because wastewater contaminated with high chlorine concentration may cause an environmental impact to lake's ecosystem; therefore it is recommended to immediately (1) call out emergency response team to divert the wastewater away from the lake to an open culvert for percolation and (2) plug up the outfall to completely stop the flow to the lake. There is no requirement to report the incident to the State Water Quality Control Board and the Riverside County Environmental Health, but [U.S. Fish and Wildlife Service] may be required. Witness-5 will be contacting base Fire Department to respond to the incident and will update us timely.

60. At 1600, Witness-7, the prison plant manager (now the Chief Engineer), and the prison Equipment Maintenance Supervisor, arrived at the fence between the prison and Navy property to discuss the situation with Witness-5. He told them of his concern to contain the continuing wastewater flow. Witness-7 agreed to send a crew to handle the problem.

61. At 1630, Witness-5 returned to the spill site where Witness-3 and Witness-4 had been working. Witness-3 said prison personnel had started diverting the flow of liquid to their side of the fence. He and Witness-4 then left the site. At 1700, Witness-5 also left the site.

62. Before leaving for the day on 6 December 2006, Witness-5 asked the Fire Brigade to check the area in the evening to ensure the flow stopped completely. The Det Corona fire station log shows an entry at 2045 that says "SQ [squad]-20 to fence

started sometime between 0830 Tuesday and 0830 Wednesday when PE-1 discovered and fixed it, and therefore it was not more than 50 gallons. The IO questions whether PE-1 checked the treatment room on Monday or Tuesday mornings as he is supposed to do, and suspects the leak may have started over the weekend. For the purpose of this investigation, however, NAVINSGEN accepts Witness-7's estimate.

¹³ Witness-11 did not visit the site on Wednesday; his statement that Witness-5 told him some liquid had reached the lake is incorrect.

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line to check spill area for any changes. Flow has stopped completely." At 2130 the log shows, "Witness-5 called to check on status of spill." Witness-5's email indicates he spoke to Witness-4, who told him the wastewater flow toward the lake had been contained.

63. When interviewed by the IO, and later by NAVINSGEN staff, Witness-7 explained that the previous week a water pipe running between the city of Norco and one of two large water tanks on the prison grounds broke and spilled a large amount of water onto the hill. On Wednesday, a prison crew that included a backhoe was repairing the broken line. When she and other prison officials learned of Witness-5's complaints, they thought he was referring to the city water leak, rather than the sodium hypochlorite leak, and did not understand why he was upset that some of this water might flow into the Lake. Later that day, Witness-7 learned of the sodium hypochlorite leak and understood this was the reason for Witness-5's concern.

64. Witness-7 explained the system was set to pump 50 gallons of sodium hypochlorite per day through a plastic pipe running to the million gallon water tank. The water operator was checking the pumping system daily in the morning and did not notice any leaks on Tuesday. He discovered the leak at approximately 0830 on Wednesday. The leak was not in the sodium hypochlorite tank itself, but in a plastic pipe that ran between the pump and the water tank. Consequently, she asserted that if the leak had lasted for 24 hours, the most that could have leaked from the pipe in that time was 50 gallons.

65. Witness-7 said after the sodium hypochlorite left the drain pipe part of the way down the hill, it flowed onto the soil that was already saturated with the city water that had leaked earlier. Witness-7 said the design of the system should have provided for the drain pipe to open in an area where any discharge would be contained, thereby preventing it from flowing down the hill toward the Lake. She said the prison has changed the system to ensure any future leak will be contained.

66. Witness-7 gave the IO an internal prison e-mail written on 6 December 2006 at 1600, in which she provided the following account of events:

PE-2 was sent at 1300 hours [on 6 December 2006] to meet with PE-1 and Witness-5 to determine what the problem was. PE-2 returned at 3:15 and stated that they were worried

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about our water going into the lake and killing the fish. PE-2 stated they wanted us to bring a backhoe and create an earthen berm in front of the area. [The Acting Correctional Plant Manager] and I reported to the site. I found the water in the water treatment room shut off. Everything else looked normal.

We went to the fence and saw the navy fire department shoveling dirt along the roadway. The water was still trickling out of the drain and we could hear water running through the drain. PE-1 and PE-2 reported to the room at about 3:45. I asked PE-1 if there was any result to him shutting off the water that had been running continuously from the valve. He told me he had left that water running to prevent corrosion in the floor drain [and]...said he kept it running in case he had a chlorine leak.

Witness-5 was called by the Navy Fire Department. [He] said to us that they were worried about the chlorine getting into the lake. We told Witness-5 the water that had been flowing in the water treatment room had been shut off and the flow of water was stopped. We also redirected a small trickle of water from the chlorine analyzer away from the hillside, toward our property. With the flow of water from the water treatment room shut down, we left for the evening at approximately 4:45.

67. Witness-5 said he did not wear personal protective equipment (PPE), breathing apparatus, or gloves on 6 December and did not recall if the fire fighters were wearing any protective gear. He did not touch the ground or water and smelled chlorine; on a scale of 1-10, he rated the smell as between 3 and 4 in strength.

68. Witness-5 indicated that while visiting the site he had a light headache and it was a little hard to breathe, but his symptoms were not bad. He said his symptoms were not serious enough to see a doctor, but they lasted 3-4 days. He was unaware of anyone else with any symptoms from exposure.

69. Witness-5 said his only recollection of testing was that he relied on the prison to do anything necessary because it was their spill. He did not recall if anyone told him tests were done by anyone or if he told anyone that tests were done.

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70. The NWS Seal Beach Detachment Corona fire station log shows an entry at 1500 on 6 December 2006 reading, "Call of water with low level of chlorine going into lake by water tank at fence line with prison - diked up 2 areas to keep run-off out of lake.... Contact-Witness-7."

71. In a statement written on 19 December 2006,¹⁴ Witness-3, stated the following about events on Wednesday:

On 12/06/2006 at 1430 I was told to go to the prison fence line where the water tank is, to meet with the base Safety Officer, Witness-5, to help him divert some water from running into the base lake, since it had low levels of chlorine in it. Upon arrival we (Witness-3 and Witness-4) stopped short of the spill area and spoke with Witness-5. At this time Witness-5 informed me that the water from the tank had low levels (2 parts per million (ppm)) of chlorine as measured by the prison. There were two areas where action was needed; we shoveled some dirt to slow the water's progress.

I also spoke with the people at the prison, Witness-7, and she also told me that the chlorine levels were well within safe limits. We then stood by till the prison diverted the remaining run off into their storm drain. We arrived back in station at 1630.

72. The Det Corona Security Desk Journal shows the following entry at 1600 on 6 Dec 2006:

A chemical (chlorine) discharge was noticed coming from the prison by Witness-5. The prison was contacted and corrections site manager [Witness-7] responded along with [another person] and Federal Fire. Witness-7 agreed to have a berm built to [keep] the discharge from entering onto the property and into the lake.

73. Witness-3 said he was notified of the HAZMAT by Witness-2. He said Witness-2 initially said he had checked out the

¹⁴ On 18 December Complainant filed a workers' comp claim for exposure to "liquid chlorine" but said he was "not claiming for compensation, just documentation." Witness-3 gave a 19 December statement supporting the claim but said no one told him of headaches, nausea or difficulty in breathing. The Department of Labor denied the claim on 21 February 2007.

situation on site and Witness-5 wanted Witness-3 to "come by and help him keep some water from flowing into the lake, and that was chlorinated water."

74. Witness-3 said when he and Witness-4 arrived at the site they spoke to Witness-5. Witness-3 said he could smell the chlorine although they were standing off to the side of it. He added, "I did not have a concern about the amount of chlorine...we had there, they had told me it was safe at that point, too" so he did not feel a need to wear any PPE or breathing apparatus. He indicated neither he nor Witness-4 wore any protective gear, but it was available on the fire engine if it were needed. Witness-3 said the first time he visited the site he did not kneel or touch the ground, water or asphalt. He said he and Witness-4 did some "diking" so the discharge wouldn't flow into the lake. He said they worked with dry soil that had not been contaminated by the spill.

75. Witness-3 said he did not know the prison officials, but Witness-5 introduced him to prison personnel on Wednesday and they had a "little talk" on site, discussing the levels of chlorine in the water, the safety of the spill, the length of the spill and the amount. He said the prison officials said:

...that it was a very safe environment to be in. They told me that it was two percent; I believe it was, I'm not exactly sure of the conversation, but it was three percent or two percent or less of the concentration [of chlorine] that was in the water.¹⁵

76. Witness-3 also said prison personnel told him it had been flowing since morning and they talked a little about the device it was coming out of; he recalled it was, to his understanding, a chlorinator that extracts the chlorine from salt. He said he was "semi-familiar" with this process because he has a friend who has a pool with this type of filtration, adding salt to a machine and it extracts chlorine from the salt before adding it to the water. He said it is his understanding that this process

¹⁵ A 5% mixture is common for household bleach. Coming out of the storage tank, the mixture was 12.5% sodium hypochlorite and 87.5% water. As it mixed with the water used to flush it down the drain and water already on site, it became further diluted. If 100 gallons of the solution was diluted with only 1,000 gallons of water, the percentage of sodium hypochlorite in the mixture would contain 1.25% of "chlorine."

occurs in the building next to the water tank on the prison side of the fence.

77. Witness-3 said "the smell that I encountered the first day that I went there was no more than being around a swimming pool, maybe a little bit more and I took that because it was on warm asphalt" and that would cause it to be spread out more over a larger surface area than in a swimming pool.

78. Witness-3 indicated his experience with pool cleaning in the past tells him that two percent is "a good pool" so that level would be normal in pool water and would be safe to be near. He said from his training in HAZMAT, he has learned that 5% is the level where, "you get really concerned about the concentration at that point."

79. Witness-4 said he was on duty on 6 December 2006, and received a call indicating there had been a water spill. He and Witness-3 went to the site. He said Witness-5 and prison personnel were there when they arrived.

80. Witness-4 said he saw water flowing down the hill from the prison on the North perimeter of the Navy property adjacent to the prison. He did not detect a smell of chlorine at first; he thought maybe the wind shifted or something and then he did smell it, thinking it was just chlorinated water, like from a swimming pool. He said that it smelled more highly chlorinated than potable water for drinking, but was not so strong that it would make your eyes water or nose sting. He did not recall wearing any PPE; he wore boots and regular clothes, but no breathing apparatus. He indicated he did not feel any need for PPE or breathing apparatus, but it was available if needed on the fire engine. He said Witness-3 did not wear any PPE or breathing apparatus, either, but he also had it available on the engine if he had felt the need to wear it.

81. Witness-4 said he walked through a little bit of the mud and took a shovel and used it to divert the water. He said they were uncertain as to how the equivalent of "pool water" would interact with the wildlife in the lake, so they diverted some, but there was too much to do any good, so they put the shovel back after about a minute. He said he did not touch the contaminated soil/water with his hands, and he didn't kneel down to get a closer smell.

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82. Witness-4 said the spilled water was flowing and had saturated a good section of the ground. He did not see any runoff into the lake, but he believed it had the potential to get into the lake. He said he did see the ground was saturated. He did not recall seeing any standing water, but he did recall seeing active running water coming down the hill.

83. Witness-4 said he thought the prison decided to send a bulldozer or backhoe to divert the water from their side of the fence line. He said that it was getting dark, but the fire brigade was no longer needed. He indicated this did not seem like a dangerous situation. He said that even though it smelled like chlorine, he thought it was drinking water from the prison storage tank.

84. Witness-4 said he did not recall seeing the white streams (of dried chemicals) on the ground mentioned in the OSC tasking letter. He went on to say:

If I had detected anything that I thought was unsafe, I wouldn't have gone into the area; I don't remember seeing any white streams or any bubbles or anything to me that would indicate that this was some sort of toxic stuff.

85. Witness-4 stated it might have been helpful to test the water, but he did not believe the fire department was capable of running such tests. He added he did not recall being involved in a meeting in which Witness-3 discussed PPM tests. Aho indicated that, "when we were talking to the prison folks, I believe they mentioned, they threw out some numbers" but he did not recall what they were. He said he got the impression that the prison knew what had spilled from the tank.

Thursday, 7 December 2006

86. Witness-5 visited the site at 0800 and confirmed the flow of liquid had stopped.

87. Witness-9, the NAVFAC representative for Det Corona, visited the site on 7 December, between 0730 and 0800, to check for erosion and to determine what needed to be done to correct the chlorinated water spill. At that time, he said the spill was contained; there was no flowing water, just saturated soil where you could plainly see the event had occurred. Witness-9 observed a heavy chlorine smell coming from the soil. He used his cell phone to advise Witness-11 of his findings.

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88. Witness-9 said if he had sensed a hazard when he arrived, he would have immediately left the site. He picked up some wet soil and held it about 15 inches away from his face, without gloves. He smelled chlorine. He had no reaction or physical symptoms from this exposure. Witness-9 said the soil was damp; he did not observe any puddles. It had dried along the asphalt, but "you could clearly see where the spill had flowed across the asphalt, you could follow it from the property line to where it stopped." He said there was some white discoloration and crystallization on the asphalt that, while not heavy, could be seen. He did not see any white coloring in the dirt, only on the asphalt.

89. Based on his reading of Witness-11's 6 December email to him, Witness-10 thought the spill had reached Lake Norconian. On Thursday morning, his email to various members of the EPSO staff stated "Witness-11 and [another person at EPSO] have been taking the lead on this issue. They need a water quality consult regarding Lake Norconian and potential affects to natural resources." That afternoon, after learning the spill had not reached the Lake, he sent another email stating:

We've just learned that the chlorinated water did not reach the lake and this changes everything from the standpoint of reporting this to a regulatory agency. Therefore, I do not intend to report this incident to the Santa Ana Regional Water Quality Control Board.

90. Complainant made his first visit to the site on the afternoon of Thursday, 7 December 2006. He told the IO "I came in on Thursday and Witness-3 said we just gotta go help safety out and cordon off the area where there was a chlorinated water spill." He said Witness-3 added that he thought it was nothing major.

91. Complainant told the IO the area smelled "really bad" when they arrived. He stayed with the truck and put stakes out at several spots along the lake side of the road. By contrast, Witness-3 walked throughout the muddy area. Complainant said he told Witness-3 he was getting a headache, but also told the IO he didn't think anything of it because he thought "it was chlorinated water, nothing to worry about." Complainant then told the IO he first began to suspect the spill might be more than chlorinated water when Witness-3 mentioned they wanted to build a berm to keep the spill from reaching the lake. He said

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he told Witness-3 that if that was all it was, he didn't see a need to create a berm.

92. Witness-3 said that on Thursday, 7 Dec 2006, he received a call at about 1430 telling him to go to the site to help "base safety" set out some flags to keep walkers and joggers out of the mud in the area. He and Complainant arrived at the site around 1450 and the smell was still present, but not as strong as it had been on Wednesday. He said they placed the flags without incident and returned to the station at about 1630.

93. Complainant said that night he couldn't sleep and he was agitated, but he didn't realize that it had been a liquid chlorine spill¹⁶ so he did not connect his symptoms to the exposure. However, Witness-3 told the IO he spent the night on duty at the Fire Station with Complainant, who did not mention or appear to have any adverse symptoms at that time.

94. A fire station log entry dated 1450 on 7 December states:

Witness-2 called from Fire [Station] [to the fire truck in which Witness-3 and Complainant were visiting various locations conducting inspections] to tell us to assist Safety in flagging off an area that was contaminated by water and chlorine by prison fence line. Flagged off appropriate area per Witness-5.

95. Witness-3's 19 December 2006 written statement contains the following statement about Thursday:

The next day 12/07/2006 at 1450 we (Witness-3 and Complainant) were called to return to the area to help base safety setup some flagging to keep walkers and joggers out of the mud. We did setup flagging without incident. We were back in quarters at 1520.

¹⁶ In a phone conversation with NAVINSGEN, Complainant said Witness-3 originally told him the chemical in the water was chlorine, and no one has ever told him it was something else. Complainant explained his references to chlorinated water and chlorine were intended to distinguish between the quantities of chlorine in the liquid. At first, he was led to believe it was only a small percentage of chlorine, so it was safe; later, he believed it was a larger percentage, perhaps one that might be unsafe, which is why he sought test results. Complainant candidly informed NAVINSGEN he suffers from allergies and occasionally gets nosebleeds. He cannot be certain his symptoms were caused by exposure at the spill site.

96. Witness-13 is employed by the Riverside County, California Department of Environmental Health as a Hazardous Materials Management Specialist in the Hazardous Materials Management Division. He was interviewed by the IO and, later, NAVINSGEN staff, by telephone for this investigation. On Thursday, 7 December he received a call from a co-worker who told him that Witness-14, a scientist at NWS Seal Beach had called to say a Navy employee had reported a strong smell of chlorine coming from damp soil originating at the prison water treatment facility. The scientist said they suspected an unknown amount of hypochlorite solution had flowed from the prison onto the grounds of Det Corona. Witness-13 said he would visit the site the following day.

97. Witness-14 is a Senior Environmental Scientist at NWS Seal Beach EPSO. She contacted the Riverside County Environmental Health Department to arrange for someone to visit the site. After learning Witness-13 would visit the site on Friday, she passed the information to Witness-9 by email.

98. Witness-1 said Navy made no further effort to contain or clean up the site on 7 December because prison officials had told the Navy the spill was just potable water.

Friday, 8 December 2006

99. At 1335, the following entry was made in the fire station log:

Witness-1 requested Eng-20 & Witness-2 to respond to chlorine spill area from Dec. 6, 2006. Upon arrival wanted our input on where run-off went. We pointed out all areas & made suggestions where dirt could be stored after it is dug out.

100. At approximately 1400 on Friday afternoon, about 10 people met at the spill site to discuss the situation. They included Witness-1, the Det Corona OIC; Witness-2, Witness-3 and Complainant from the Fire Brigade; Witness-9 from NAVFAC; Witness-11 from EPSO; Witness-7, Witness-6 and the Acting Correctional Plant Manager, from the prison; and Witness-13, the HAZMAT Specialist from the Riverside County Department of Environmental Health HAZMAT Management Division.

101. Witness-1 said the soil at the spill site still smelled strongly of chlorine and contamination was evident on the lake

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side of the road. He said "environmental" was making the decisions and recalled Witness-13 recommended building an earthen berm around the contaminated site to prevent an expected weekend rain from causing the spill to flow into the lake. He also recommended removing as much contaminated soil as possible.

102. Although Complainant later asserted that Witness-2 and Witness-3 were making decisions and giving directions about how to handle the spill, Witness-1 said the only input fire brigade personnel had during the meeting was to point out where the spill had been earlier and suggest areas on the back side of the hill that could be used to spread out the contaminated soil to dry. Witness-1 agreed with the location they suggested.

103. When specifically asked if Witness-3 had given advice about where to move contaminated soil, Witness-1 said:

...because Witness-3 had been on the scene the day of the spill with the initial response out there to take a look at the site, he was aware of where the flow of the water had gone. And what he was pointing out to the [Riverside County Specialist] and to the prison officials was the boundaries of where the contamination had been on that day that he had observed. Which was also evidenced by the color of the soil along the road, there was coloring that showed where it was still wet because it did not evaporate like normal water. He was able to point that out. And we were able to establish kind of a boundary of where the surface water runoff had gone and what he had seen that day on that Wednesday of the spill....

104. Witness-1 explained that Witness-13 gave cleanup directions and Witness-11 agreed with his approach:

What the [Riverside County] and Seal Beach environmental said was to remove the first layer of the top soil. Not much, you know, maybe an inch or two down where it was obviously contaminated. Put it in the plastic bags and form a barrier between the spill area and the lake so that if it rains the top water, the storm water, would not drain directly into the lake. It was environmental that was suggesting where it should go.

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105. Witness-1 said the prison responded with a prisoner detail to shovel contaminated soil into plastic bags and a bucket tractor to help build a berm. At approximately 1800, Friday night, the berm was in place with the bags of soil used to reinforce the berm. Witness-1 also said he visited the site several times between Wednesday and Friday and had held some soil in his hand. He said the soil smelled of chlorine, some of it a very strong smell, but he did not get sick.

106. Witness-13 provided the IO a copy of the report he wrote after the meeting. It states:

8 December 06/1300: I met at the NWS with Witness-11 (NWS Media Manager) and Witness-7 (CRC Plant Manager) at the area of damp/wet soil in question. From staining on asphalt and striations in the damp soil it was evident that recently a large amount of liquid had flowed from the CRC water treatment plant onto the NWS. The soil did have a distinct chlorine odor. Witness-7 stated the plant has a 5000 gallon tank that stores sodium hypochlorite (12%). The tank is in a concrete containment area that did not appear to have held any liquid recently (cobwebs and dust/leaves).¹⁷ The only explanation offered by Witness-7 was the released liquid was treated drinking water with a higher than normal amount of hypochlorite (she estimated 4.0 ppm). I surmised that the soil would most likely not meet any criteria that would classify it as hazardous but it should be picked up.

1400: I notified [a person at] RWQCB¹⁸ who did not seem concerned since the liquid did not reach any waterways. I did inform him that it was near Lake Norconian (NWS). I suggested that the CRC and NWS work together to remove the contaminated soil. Once work began I briefly reviewed the CRC's HMBEP which did not contain a current chemical inventory. I informed Witness-7 to expect an impending visit from the District Specialist.¹⁹

¹⁷ Witness-13's statement confirms the leak was not in the tank itself.

¹⁸ RWQCB is the California Regional Water Quality Control Board.

¹⁹ HMBEP stands for hazardous material business emergency plan, which is similar to a fire emergency preplanning document. It should include an inventory of HAZMAT at the prison and be updated every two years. Because

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1655: I departed. No further action

107. During his interview with NAVINSGEN, Witness-13 explained that while sodium hypochlorite is considered a "hazardous material," it is not a "hazardous waste," and he did not consider the site to be dangerous because of the amount of water that had been used to dilute the sodium hypochlorite. He explained that the strong chlorine smell at the site is typical of sodium hypochlorite and can remain for quite a while, even if the condition is not dangerous. He said some of the Navy personnel were concerned about the solution getting into the water, and he agreed that the prison should take action to prevent that from happening. Otherwise, in his opinion, no clean-up effort was necessary; the sodium hypochlorite could stay in the soil until it completely dissipated over time.

108. Witness-13 told NAVINSGEN he thought the spill was more a water code issue than a HAZMAT situation. Consequently, as indicated in his report, he called his contact at the California Water Quality Control Board to give him an opportunity to examine the site. His contact declined because the liquid had not reached the Lake. He also told Witness-13 that the state did not consider Lake Norconian a "beneficial use," meaning that it was not connected to any aquifer that was a source of drinking water.

109. Witness-6 is a state prison Associate HAZMAT Specialist and the senior HAZMAT specialist assigned the CRC. She is a trained HAZMAT first responder who is recertified annually. She recalls originally being told that perhaps only five gallons of sodium hypochlorite had spilled on Wednesday. She was unable to visit the site until Friday, when she attended the on-site meeting with Witness-7 and the acting Correctional Plant Supervisor. When she got out of her vehicle and smelled the chlorine odor in the air, her first reaction was that the spill must have been more than five gallons. But as she walked around the site, she decided it was not very bad. She noticed that there was no longer any flowing liquid. While she could trace the spill flow down the hill and across the road toward the lake, she saw nothing indicating it had reached the lake.

the list did not appear current, Witness-13 wanted a state official to review the plan with the prison.

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110. At the meeting, Witness-6 learned that because heavy rains were predicted for the coming weekend, Navy personnel were concerned that the sodium hypochlorite, although already greatly diluted with water, would reach the lake and cause damage. She agreed the prison should clean up the site and, at the suggestion of Witness-13, the County HAZMAT specialist, decided to build an earthen berm around the area near the lake, and pick up and bag the saturated soil.

111. Witness-6 explained that the prison has its own fire department, which includes prisoners trained in fire fighting and HAZMAT cleanup. This fire department also responds to fires and HAZMAT spills in the local community. She said the prison used prison fire department personnel and the backhoe that was working at the site of the water pipe leak to create the berm and bag the soil. Initially, the fire department crew wore fire fighter "turn-outs" (fire and chemical resistant coats and pants) along with waterproof firefighting boots, gloves, and goggles.²⁰ When the turn-outs became too warm, they took them off with her approval. They did not wear respirators and, in her opinion, none were necessary under the circumstances.

112. Witness-6 said Navy personnel identified a source of clean soil on Navy property the prison could use to create the berm. Later, she asked if they could put the bagged soil on top of the berm to help protect the berm in case of heavy rains and the Navy agreed to this precaution. She reported that there were only light rains over the weekend, and when that threat had passed, the prison took the bagged soil and spread it out to dry as Witness-13 had suggested. They spread the soil in an area that would drain away from the lake if it rained.

113. Witness-6 called the National Response Notification Center and the California Office of Emergency Services in Sacramento. She was told the prison did not need to report the sodium hypochlorite spill because it was less than 500 gallons.

114. Witness-6 told NAVINSGEN that it is important to distinguish a "hazardous substance," such as sodium hypochlorite, from a "hazardous waste," such as contaminated oil. Pursuant to law and regulation, a waste must be cleaned up

²⁰ Complaint thought the fire fighters were wearing "tyvec" garments. Tyvec is a material used in garments worn when dealing with light HAZMAT conditions.

and removed from a spill site, but this is not always the case with a hazardous substance. In this case, since sodium hypochlorite is used to treat the drinking water and is contained in the water used to replenish the artificial lake as the water in it evaporates, it was not necessary, from a HAZMAT standpoint, to remove it from the site. The decision to remove the top portion of soil and move it away from the Lake was due to environmental concerns about the Lake.

115. Witness-6 emphasized that because the prison was responsible for the spill, it also was responsible for, and should take the lead in, the clean-up operations. She also expressed some puzzlement at the extent of the Navy's concern in this case, since Lake Norconian contains chlorinated water. In her opinion, the amount of additional sodium hypochlorite that might have reached the Lake, even after a storm, would not have adversely impacted the Lake.

116. Witness-3 recalled:

Friday, [8 December 2006] we were requested by Witness-1 to come out at [1335]...to meet with him. He wanted some advice. Upon arrival, wanted our input on where runoff went. The Commander was there, and there [were] officials from the state, officials from the prison, officials from...[Riverside County]. ...the state was there, and the prison people were there. And Witness-7 was there...we talked a little about where we had seen the puddling, and the mud, whether we saw it getting to the lake or not, well it never really got down to the lake, but it did saturate the ground within fifty feet of the lake.... Upon arrival [Witness-1] wanted our input on where runoff went.

117. Witness-3 said on Friday there was still a smell like being around a swimming pool or Jacuzzi on Friday. He indicated the base wanted the prison to dig up some of the contaminated earth and move it because they didn't want the chlorine leaching into the lake, which is a habitat for birds and fish. He said he did not know if the prison ever dug up earth. He said they did bring some prisoners to Navy property to do some diking.

118. Witness-3's 19 December 2006 statement includes the following about Friday:

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On 12/08/2006 at 1335 we (Witness-2, Witness-3 and fire fighter Flinton) were requested by Witness-1 to come to the spill area to help advise him where the cleanup crew should direct their efforts. We advised the Commander of our findings on the first day and returned to quarters at 1450.

119. Witness-11 from EPSO said he took his portable test kit with him to the meeting so that he could do his own "unofficial" tests, explaining he thought it important to have a third party do any "official" testing. But when Witness-13 said the site was safe and there was no danger to the environment, he decided no tests were necessary. Witness-11 said from what he saw, more than 100 gallons of something flowed onto Navy property. He indicated the sodium hypochlorite solution, if it was 12.5%, was 87.5% water, but he did not believe this solution was any further diluted, adding any further dilution would have probably left less smell than he noticed.

120. Witness-11 said on 8 December they were discussing what to do with contaminated soil and the only input they considered was from Witness-13. As a result of Witness-13's advice, the prison removed contaminated soil and bagged it, then used the bags to support the berm they had built. The prison also had stopped the spill at the source.

121. Witness-9 recalled there was some discussion about exactly what was spilled. He said the prison officials kept referring to the spill as potable water or as a "super chlorinated water spill" even though they conceded that "this really does smell quite a bit." But, he said:

...at no point do I recall them stating that it was anything more than a super chlorinated water spill. I believe the only reason why they did further mitigating efforts with it on that day was because of our pushing them and advising them that we believed it was more than what they were telling us.

...when they came on site and we did the face-to-face with the management, we aggressively pursued to get the facts...out of them. I don't believe, at no time do I recall, even the prison officials stating that it was a chlorine discharge.

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122. Witness-9 said that Witness-13 did not feel it would be classified as a "HAZMAT spill" but that it definitely needed to be cleaned up.

123. Complainant did not contribute to the group discussions that day. According to some, he stood apart, and one person mentioned he said "we don't belong here" at one point. Complainant recalls telling Witness-1 "this is more than a chlorinated water spill, you know, something's going on here." Complainant says Witness-1 replied "I think so too, I think somebody's trying to hide something." Witness-3 recalls that while he and Complainant drove around the site to look for a place to put the contaminated soil to dry, Complainant started questioning him about his qualifications and authority, and he told Complainant to remain in the truck when they returned to the group. At some point on Friday, Complainant seems to have become convinced that the spilled chemical was chlorine, rather than sodium hypochlorite.²¹

124. The Det Corona Security Desk Journal of 2:00 PM on 8 December 2006 shows:

Notified by Witness-1 that [prison] has a crew working on our side of the fence line to repair damage from the spill." A second entry at 7:16 PM reads: "[Prison] stopped project and will continue on Monday. [Prison] convict crew off station at this time.

125. The 8 December 2006, prison e-mail record of the meeting reads:

Met at Navy building and made trip to site where chlorine smell was evident in mud.... An inspection of the navy site revealed crystallized chlorine on the surface of asphalt and dirt roadway. Mud smelled like chlorine. Witness-6 assembled a crew of inmates to collect contaminated soil and bag using this [to form

²¹ The exchange in the truck appears to be the source of Complainant's assertion that Witness-3 treated him with disrespect. Complainant's internal emails and his May 2007 submission to OSC fairly can be read to indicate he alleges a chlorine spill; he made the same assertion when the IO interviewed him. Several Navy personnel interviewed during the investigation continue to express some skepticism as to the nature, or amount, of the spilled chemical and Complainant is not the only one to suggest the prison was trying to "cover up" something about the incident.

a berm] along with sandbags. They worked until approximately 6:30 PM.

Monday, 11 December and Tuesday, 12 December 2006

126. In response to questions from the IO, Witness-15, a contractor serving as a Senior Environmental Compliance Analyst at EPSO, stated in an e-mail:

I visited the Corona site on December 11, 2006 to evaluate the spill site on behalf of Seal Beach Environmental Media Managers. I conducted a visual observation to determine if there was any liquid remaining from the spill and conducted an olfactory evaluation to determine if there was any chlorine residual smell. I did not observe any standing liquid. I did not detect any chlorine residual smell either from the open soil or the bagged soil. From the open soil, I dug down approximately two inches into the soil to determine if there was any chlorine residual smell and detected none. For the bagged soil, I randomly picked five bags and selected soil from the interior of the bagged soil to determine if there was any chlorine residual smell and detected none. I did not collect any samples for testing by an analytical laboratory.

127. Witness-1 said that on 11 December 2006, Witness-10, the EPSO Program Director, verified the bagged soil was not dangerous, and they asked to have it spread out on the back side of the property where the chlorine would naturally dissipate. Witness-1 did not know how EPSO decided the soil was not dangerous; he thought initially that tests had been done on the soil, but he found out later that no tests were done by anyone, and he was not able to get any testing documents.

128. Witness-1 stated a 12 December e-mail from Witness-10 to the NWS Seal Beach Commanding Officer, said the Environmental staff met Monday, 11 December at Corona and determined that the chlorine had all but dissipated from the ground and from the bagged soil. Further cleanup was completed successfully on 12 December by the prison. All response actions were complete at that time.

129. Witness-1 said the NWS Seal Beach Commanding Officer responded to Witness-10 by asking if CNRSW tracks this type of incident. Witness-10 responded that there is no Navy reporting

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requirement; he did discuss the situation with the Navy On-Site Coordinator (NOSC) at CNRSW.

130. In an e-mail internal to the prison dated 11 December 2006 at 3:10 PM, Witness-7 wrote:

Friday evening Witness-6 supervised scraping of contaminated soil, bagging, and using bags to create [a berm] to prevent any chlorine from reaching the lake in the event of rain.... I have contacted Witness-11, [NSW Environmental Engineer and EPSO member] for the Navy. He has requested the soil to remain where it is until their specialist, Witness-16 can be contacted for his directions. Witness-16 called me at 3:15, 12/11/06, requesting that we bring a work crew over early tomorrow to spread the soil from the bags into a thin layer to allow any remaining chlorine to dissipate before the next rainstorm.

131. Witness-6 called two state agencies on 11 December, the Office of Risk Management and the Office of Emergency Services to report the spill and discuss the need for follow-up action. She also reported the spill to the City of Norco Public Works Department. She documented her discussions in a memo dated that day and provided a copy to the IO during the investigation. The memo shows she was told the reportable spill quantity was 500 gallons, well above the amount she believed had spilled at the site. She was told the chemical should dissipate over time without the need for further action. The memo documents several things she was advised to do in order to minimize the chance of another spill, and to contain any spill in the future.

132. In an e-mail to Witness-7 dated 12 December 2006, Witness-16, the Conservation Program Manager for NWS Seal Beach Environmental Programs and Services Office (EPSO) stated:

Request that a work crew support the removal and emptying of 100+ bags of chlorine-contaminated soil from last weeks spill. Once removed, request that earthen berm be removed and graded back to original state.

133. The prison accomplished the work requested by Witness-16 that day. Witness-1 said that because EPSO told him the incident was over and nothing further needed to be done, all action was complete and the matter could be closed.

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IO Attempts to Determine Spill Quantity and Composition

134. During the investigation, the IO asked Witness-17, a NAVFAC mechanical engineer, to try to quantify the volume of liquid that may have flowed onto Navy property. Prison personnel told him the leak occurred on the discharge side of a small pump that supplies 50 gallons of a 12.5% solution of sodium hypochlorite a day to the potable water system. The pump is a positive displacement pump; its discharge volume is constant and not a function of any control system.

135. Since prison personnel said 50 gallons had spilled, Witness-17 (in the presence of the IO and prison personnel) poured 50 gallons of water into the drain where prison personnel said the leak had flowed.²² This test was completed with the understanding that the weather and soil conditions were not identical to the December 2006 conditions. Based on photographs taken on 6 December 2006, the fluid traveled approximately 175 yards from the point of discharge to where it stopped on Navy property. When 50 gallons of water was poured into the same drain, the liquid traveled approximately 10 yards. Therefore, Witness-17 concluded the quantity of liquid flowing in December 2006 far exceeded 50 gallons.

136. Witness-17 discussed this finding with Witness-7 on-site at the prison facility and she concurred, reminding him that there had been a water leak at the prison approximately a week before and she believed rain had saturated the dirt hill and caused the water from the water leak and the "chlorine" leak to have extensive flow.

137. Witness-17 determined that, based on the currently available evidence, it is impossible to make an accurate determination of the amount of liquid that flowed onto Navy property. However, he estimated the total flow would have been on the order of 2,500 gallons for it to have flowed 175 yards down the hill. Witness-17's research also showed that highly diluted sodium hypochlorite can still emit a strong chlorine odor and therefore even if the flow had been 2,500 gallons, only 50 of which was sodium hypochlorite, there may still have been a strong "chlorine" odor.

²² When filling the buckets to perform the test with 50 gallons of water on 28 June 2007, Witness-17 noticed a heavy smell of chlorine in the water from the tap at the prison's water treatment facility.

138. The evidence described to this point demonstrates that at various times between Wednesday the 6th and Friday the 8th, several people heard statements that led them to believe someone had taken a sample of the liquid spilled onto the ground and analyzed it for chemical composition. The IO gathered extensive evidence in an attempt to determine whether anyone had performed a chemical composition test and what had been said or written during the months of December 2006 and January 2007 that would lead one to believe such a test had been performed. She was unable to establish that anyone actually took a sample of the liquid for testing. The people she interviewed either thought a test was unnecessary, or that someone else had done it. NAVINSGEN finds that no test was performed.

139. Having reviewed the events of December 6-12, 2007, and attempts to determine the amount of liquid spilled and its chemical composition, we now describe the regulatory HAZMAT response requirements against which the events must be judged. We begin with a discussion of sodium hypochlorite and then turn to the pertinent regulations.

Characteristics of Sodium Hypochlorite

140. Sodium Hypochlorite is listed in 40 CFR 302, Table 302.4, which renders it a "hazardous substance" under Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Pub. L. 96-510).

141. Because sodium hypochlorite is a hazardous substance under CERCLA, it is also a hazardous substance under Department Labor Occupational Health and Safety Administration (OSHA) Regulations appearing at 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response."

142. While sodium hypochlorite is a hazardous substance, it is not a "hazardous waste" within the meaning of 29 CFR 1910.120, because it is not identified in 40 CFR 261.3 or 49 CFR 171.8.

143. Powell Fabrication & Manufacturing Inc., a chemical distributor specializing in sodium hypochlorite, publishes an online handbook that includes the following discussion:

Sodium Hypochlorite is a greenish-yellow liquid commonly referred to as "Bleach." The chemical compound formula for Sodium Hypochlorite is NaOCl. Sodium Hypochlorite is prepared by reacting dilute caustic soda solution with

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liquid or gaseous chlorine, accompanied by cooling. Sodium Hypochlorite is the main ingredient in laundry bleach. It is used extensively as a bleaching agent in the textile, detergents, and paper and pulp industries. It is also used as an oxidizing agent for organic products. In the petrochemical industry, sodium hypochlorite is used in petroleum products refining. Large quantities are also used as a disinfectant in water and wastewater treatment and sanitary equipment. In food processing, sodium hypochlorite is used to sanitize food preparation equipment, in fruit and vegetable processing, mushroom production, hog, beef and poultry production, maple syrup production, and fish processing.

144. The Department of Human Services, Centers for Disease Control and Prevention, website on sodium hypochlorite states:

Sodium hypochlorite is generally sold in aqueous solutions containing 5 to 15% sodium hypochlorite.... Solutions of up to 40% sodium hypochlorite are available.... Sodium hypochlorite solutions are a clear, greenish yellow liquid with an odor of chlorine. Odor may not provide an adequate warning of hazardous concentrations.

Sodium and calcium hypochlorite are manufactured by the chlorination of sodium hydroxide or lime. Sodium and calcium hypochlorite are used primarily as oxidizing and bleaching agents or disinfectants. They are components of commercial bleaches, cleaning solutions, and disinfectants for drinking water and waste water purification systems and swimming pools.

145. The Chlorine Institute, Inc., publishes an on-line manual for sodium hypochlorite that includes the following discussion:

Generally sodium hypochlorite solutions are produced at strengths up to 20% by weight of sodium hypochlorite. Frequently manufacturers provide a range of strengths depending on customer requirements. Typical bleach solutions with strength of less than 7.0 weight percent sodium hypochlorite are used in household bleach applications.

The term "chlorine solution" or "chlorine water" denotes a solution of chlorine in water. The term "chlorine

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solution" is sometimes used to describe hypochlorite solutions, but is a misuse of the term and should be discouraged.

Household Bleach is a solution of sodium hypochlorite, generally containing 5.25% (by weight) sodium hypochlorite or less.

Liquid Chlorine denotes the element, chlorine, in the liquid state. The terms "chlorine" and "liquid chlorine" are sometimes used to describe a hypochlorite solution employed for swimming pool sanitation. This misuse of the terms should be discouraged as it could cause significant confusion.

Liquid Bleach denotes a solution of hypochlorite, usually sodium hypochlorite (this term rather than "liquid chlorine" should be used to describe a liquid hypochlorite product).

Industrial Strength Hypochlorite Solution denotes a solution of sodium hypochlorite generally containing sodium more than 7% (by weight) sodium hypochlorite (these solutions are erroneously referred to as "hypo" solutions; this terminology should be discouraged).

146. Working with prison officials, the IO learned the trade name for the sodium hypochlorite used by the prison is "12.5% Trade Industrial Bleach," manufactured by a company called KPC, operating under the name of KIK Custom Products.

147. The Material Safety Data Sheet (MSDS) for the KPC product used by the prison contains a "hazardous ingredients" table that lists sodium hypochlorite at 12.5-13.5 percent, and sodium hydroxide at a "maximum" of 1.5 percent.

148. Under Toxicological Properties, the MSDS indicates the chemical can enter the body by skin contact, skin absorption, eye contact, inhalation and ingestion. Under "Effects of Acute Exposure," the MSDS states:

Inhalation of vapors will irritate breathing passages and may cause breathing difficulty. CORROSIVE will cause severe irritation to eyes and skin. May cause permanent damage if not treated properly. Ingestion can cause

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corrosion of mucous membranes, severe esophageal burns and perforation of esophagus or stomach.

149. Under Preventative Measures, the MSDS states:

PROTECTIVE EQUIPMENT. Gloves: Impervious PVC or Neoprene. Eyes: Chemical splash goggles. Face shield also helpful. Respiratory: Not normally required. Footwear: Protect shoes and feet when using product for floor cleaning. LEAK AND SPILL PROTECTION: Small spills: Dilute product by flooding area with large quantity of water and flush to sanitary sewer. Large spills: Contain run-off by diking with suitable material. Soak up liquid in inert absorbent and transfer to approved container. Prevent spill from entering sewers or waterways. WASTE DISPOSAL: Reclaim or dispose in accordance with local regulations. STORAGE REQUIREMENTS: Store in a cool, dry and well-ventilated area.

150. Table 302.4 at 40 CFR 302 states the "reportable quantity" for a spill of pure sodium hypochlorite is 100 pounds. The table does not indicate the reportable quantity of diluted liquids. The KPC MSDS does not list the reportable quantity for the 12.5% solution used at the prison. The IO found an MSDS for a similar product manufactured by another company that states the reportable spill quantity is 80 gallons. Using information in the KPC MSDS, Witness-15 at EPSO calculated the reportable quantity for the KPC product to be between 83.41 gallons (for a 12.5% solution) and 77.23 gallons (for a 13.5% solution), but noted that since the prison diluted the solution with water before it reached the soil, the reportable spill quantity in this case would be much greater than 80 gallons.

Regulations

151. OSHA Regulations at 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, apply to:

Clean-up operations required by a governmental body, whether Federal, state local or other involving hazardous substances that are conducted at **uncontrolled hazardous waste sites** (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are

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conducted before the presence or absence of hazardous substances has been ascertained). [emphasis added]

152. Definitions and procedural requirements in 29 CFR 1910.120 that pertain to this investigation include:

Emergency response or **responding to emergencies** means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. **Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses within the scope of this standard.** Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses. [emphasis added]

Hazardous materials response (HAZMAT) Team means an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. A HAZMAT team is not a fire brigade nor is a typical fire brigade a HAZMAT team. A HAZMAT team, however, may be a separate component of a fire brigade or fire department.

Qualified person means a person with specific training, knowledge and experience in the area for which the person has the responsibility and the authority to control.

Preliminary evaluation. A preliminary evaluation of a site's characteristics shall be performed prior to site entry **by a qualified person** [emphasis added] in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site's specific characteristics shall be performed **by a qualified person** [emphasis added] in order to further identify existing site hazards....

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Procedures for handling emergency response. (i) The senior emergency response official responding to an emergency shall become the individual in charge of a site-specific Incident Command System (ICS). All emergency responders and their communications shall be coordinated and controlled through the individual in charge of the ICS assisted by the senior official present for each employer.... The 'senior official' at an emergency response is the most senior official on the site who has the responsibility for controlling the operations at the site. **Initially it is the senior officer on the piece of responding emergency apparatus to arrive on the incident scene.** [emphasis added]

Training. Training shall be based on the duties and function to be performed by each responder of an emergency response organization. Employees who participate, or are expected to participate, in emergency response, shall be given training in accordance with the following paragraphs. (i) First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. **They would take no further action beyond notifying the authorities of the release....** [emphasis added]

153. National Fire Protection Association (NFPA) 600, Standard on Industrial Fire Brigades, states: "1.4.1.1 The degree of potential exposure to a hazardous environment and the degree of training shall determine the limits of any industrial fire brigade action and responsibility...4.3.4 Industrial fire brigade members shall not perform any response duties they have not been trained and educated to perform."

154. Office of Personnel Management (OPM) Position Classification Standard for Fire Protection and Prevention Series, GS-0081, defines Hazardous Material Personnel as "first responders who are trained and certified at primarily three levels to respond to hazardous material incidents. These three levels are: Hazardous Material Awareness Level...Hazardous

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Material Operations Level...Hazardous Material Technician Level...."²³

155. The Hazardous Substance Contingency Plan and Emergency Procedures for Naval Warfare Assessment Center Corona, CA, Paragraph 2.3.4 Cleanup and Disposal,²⁴ states:

Seal Beach Environmental Department shall ensure that cleanup efforts are sufficient to meet regulatory requirements, prevent risk to health and safety of the public, prevent further contamination, and restore environmental quality of the affected areas.

Environmental Protection Specialists will direct efforts toward the following: 1. Collect all necessary samples of the affected lands or waters to determine the degree of contamination. The samples shall be analyzed in a certified lab. 2. Determine appropriate cleanup method. Determine whether the released substance can be treated on-site or must be removed, treated, and disposed of off-site. Consult appropriate technical references to determine correct procedures for cleanup of released substance. 3. Assess Fire Department capabilities to conduct cleanup operations and determine requirements for outside assistance.

If the decision is to clean up the release using on-site resources, the Fire Chief assembles the appropriate cleanup team members. These members shall use proper protective equipment and observe the health and safety procedures in accordance with the Navy Oil and Hazardous Substance Spill Control Manual.

The Hazardous Material/Waste handlers will function as follows: 1. Treat release to mitigate a hazardous situation (e.g., neutralization) if safe and feasible. 2. Clean up and remove released substance using appropriate methods. 3. Thoroughly clean all surfaces contaminated by the released substance.... 4. Collect released residue, other contaminated material, and all nonreusable cleanup materials, including disposable clothing, sorbents,

²³ These levels are defined in the standard using essentially the same wording as 29 CFR 1910.120 above.

²⁴ This is the full title of the Det Corona Hazardous Substance Spill Response Plan, the subject of Allegation Three.

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brushes, rags, brooms, and containers. Package material in DOT-approved container(s)....5. Thoroughly decontaminate and inspect all reusable protective clothing and equipment before returning such materials to proper storage location. 6. Thoroughly ventilate indoor areas.

Discussion and Analysis

156. The evidence establishes that on Wednesday, Witness-1 contacted Witness-2 because he depended on the Fire Brigade as his HAZMAT response team. The IO thoroughly documented the qualifications of Witness-2 and other fire department personnel involved in responding to the spill. Her review established that Witness-2 was not a qualified HAZMAT "first responder" within the meaning of 29 CFR 1910. In fact, he had no training at all in HAZMAT operations. When interviewed, Witness-2 did not argue otherwise.

157. The regulations cited in the foregoing paragraphs demonstrate the importance of having a qualified person perform an initial assessment before entering a spill site to determine whether a hazardous substance is present and, if so, the conditions (equipment, procedures, etc.) required for entry onto the site and the conduct of any clean-up operations that may be necessary. Witness-2 was not qualified to perform this function. Simply being Fire Chief did not give Witness-2 the authority to be a first responder to a HAZMAT spill and did not make him a person qualified to make the preliminary evaluation of the site's characteristics. It should be noted, however, that Witness-2 never attempted to direct any clean-up operations at the site.

158. As a Fire Chief, Witness-2 did have the duty to notify qualified HAZMAT personnel of the spill and keep others out of the area until qualified personnel could evaluate the situation and direct appropriate action. In that regard, it should be noted that Complainant is a qualified first responder and could have made an evaluation of the situation had he been asked.²⁵

²⁵ In a phone conversation with NAVINSGEN, Complainant said he was not qualified to test the chemical and the Fire Brigade did not have equipment necessary to analyze it and determine its danger. He would have barricaded the road to prevent entry to the area, then called his superiors at the regional level to report the spill and ask for a HAZMAT response team.

However, Complainant was not at work on Wednesday when Witness-2 visited the site.

159. NRSW Region Fire Chief Witness-18 is Witness-2's superior. The IO briefed her on the nature of the spill and asked for her opinion as to what Witness-2 should have done, given that he was not a qualified first responder. She responded by e-mail, stating:

Given the information above, describing an unknown product of an unknown quantity, the area should be isolated at a safe distance, attempted to identify using varying resources (container markings, numbers cross referenced with the Emergency Response Guide, etc.) Additionally, environmental should have been contacted if this was on base property WRT [with respect to] cleanup. Finally, if the source was coming from off base, this facility from which this product originated from should have been contacted as well and been responsible for their cleanup and mitigation of the product. Establishment of a perimeter and denying entry into the area until such time as it was identified and deemed safe, and making appropriate notifications (environmental, CDO [Command Duty Officer], etc) is the most basic approach.

160. The IO contacted Riverside County Fire Department, Station 13, to determine what their response would have been if Witness-2 had called them and told them of a report of a very strong smell of chlorine coming from a discharge in the area of the prison water treatment plant. The response from the fire captain on duty was they would have referred Witness-2 to their HAZMAT team. He said the only response the county fire department could offer would be to isolate and deny entry to the area until the HAZMAT team arrived, if the base had insufficient staffing to do these things themselves.

161. The IO contacted the Riverside County Fire Department HAZMAT Team. The Captain, Witness-19, said that upon learning someone smelled chlorine in the area of a discharge from the prison water treatment facility, Witness-2 should have immediately called 911 and requested testing of the site by a HAZMAT team.

162. The subject matter experts at CNIC and NAVINSGEN's own environmental inspection team agree with the opinions of

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Witness-18, the Riverside county Fire Department, and the Riverside County Fire Department HAZMAT Captain, Witness-19.

163. The evidence establishes Witness-2 did not attempt to control the perimeter and deny entry to the site, and did not make any attempt to contact someone in another fire department who was qualified to make a HAZMAT assessment. In hindsight, it appears that Witness-2's assessment that there was no real hazard to people, based in part on anecdotal information obtained from his friend who worked at the prison, may have been correct. But Witness-2 could not have known that no other chemical, such as chlorine, was involved in the spill he saw on the site without first speaking to prison personnel. He simply made too many assumptions.

164. Consequently, NAVINSGEN finds Fire Witness-2 improperly failed to secure the site on Wednesday, 6 December 2006, in violation of 29 CFR 1910.120 due to his failure to contact appropriate HAZMAT personnel, such as the County Fire Department HAZMAT team, who were qualified to assess the situation, and his failure to direct his own personnel to cordon off the area beyond the area of the contaminated soil.

165. NAVINSGEN notes, however, that the situation did not appear to require an "emergency response" as that term is defined in the regulations. Prison maintenance personnel properly responded by diluting the spill with water, which would have been a sufficient response if the design of the equipment room storm drain had included a containment area at the outlet. Nonetheless, the spill was absorbed by the soil and left in the soil to evaporate over time, albeit after the soil was moved from one side of the hill to the other because of concerns about a rainstorm that did not materialize.

166. The circumstances of Witness-3, Witness-4, and Witness-5 on 6 December 2006 are somewhat different than those of Witness-2. Witness-5 was acting as an environmental specialist, whose primary concern was to protect the environment, not to lead a HAZMAT response. He used Witness-3 and Witness-4 only to cordon off the site (something Witness-2 should have told them to do in any case) and to erect an earthen berm, beyond the immediate area of the spill, in order to prevent the spill from flowing

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into the lake.²⁶ He did not ask them to "clean up" the site, and they did not attempt to do so. In addition, and unlike Witness-2, Witness-5 spoke to prison officials, who told him the spilled liquid was sodium hypochlorite, was not a danger to people working in the area and was, in fact, nothing more than heavily chlorinated water.

167. Witness-10, the EPSO Program Director, told NAVINSGEN that it is appropriate for an environmental specialist to respond to a HAZMAT incident in the manner that Witness-5 did in this case. The environmental specialist provides environmental advice to the HAZMAT team during the initial response and clean-up, but does not serve as a first responder or perform any clean-up that may be required. Witness-10's position is consistent with paragraph 2.3.4 of the Det Corona Hazardous Substance Spill Response Plan.

168. Complainant made three separate allegations against Witness-3: (1) he exceeded his authority and training certification in responding to the scene; (2) he knowingly passed inaccurate information to others, thus potentially endangering them; and (3) he provided advice regarding disposition of contaminated soil, which exceeded his authority and level of training.

169. On Wednesday, Witness-3 and Witness-4 did not go to the site to conduct HAZMAT cleanup operations. They went to assist Witness-5. Consequently, Complainant's allegation that Witness-3 was not qualified to conduct HAZMAT operations is not quite on point. However, unlike Witness-2, Witness-3 and Witness-4 did have some HAZMAT training and certifications. Witness-3 is trained and certified to the operations level, which means he is qualified to respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. He is trained to respond in a defensive fashion without actually trying to stop the release. A lead fire fighter's function is to contain the release from a safe distance, keep it from spreading, and

²⁶ The evidence establishes that warning tape erected at the site was placed alongside the road to prevent people from walking onto the contaminated soil. The IO believes it would have been better to place the tape so as to barricade the road to prevent anyone from walking alongside the contaminated soil and NAVINSGEN agrees with her.

prevent exposures. Consequently, if one considers his efforts on Wednesday and Thursday to constitute HAZMAT operations, he was qualified to do what he did.

170. Moreover, when Witness-3 and Witness-4 arrived at the scene, they did not enter the contaminated area at first, but stood safely outside talking with the individual they believed to be the base safety officer, who informed them that the spill was water containing low levels of chlorine. Witness-3 had no reason to disbelieve either Witness-2 or Witness-5, and once on site, his training and experience did not lead him to believe he had been misinformed. Indeed, he correctly concluded the spill was similar to the bleach used in swimming pools. Witness-3 and Witness-4 then proceeded to string caution tape along the road to prevent people from stepping onto the contaminated soil, an activity they were trained and authorized to perform. The allegation that Witness-3 exceeded his authority and training certification is not substantiated. Nor did Witness-4 exceed his authority or training certification in this case.

171. Complainant's allegation that Witness-3 knowingly passed inaccurate information to others and potentially exposed them to a hazardous substance is based on Complainant's contention that Witness-3 lied when he told Complainant that someone had tested the liquid to determine its chemical composition. This allegation merits scant discussion in this report. The evidence shows several people reasonably believed someone else had performed tests. They were all wrong, but no one was deliberately trying to mislead anyone. In hindsight, it may be helpful if someone had followed Witness-8's advice to take a sample of the liquid in order to dispel concerns it may have been something else. But no one, including the subject matter experts at EPA, identified an absolute requirement to test the liquid, especially given the fact that on Wednesday prison officials were able to identify it to Witness-5, who transmitted the information to Witness-11 at EPSO.

172. Complainant's allegation that Witness-3 provided advice regarding disposition of contaminated soil, which exceeded his authority and level of training, was not confirmed by Witness-1 and Witness-11. Neither Seal Beach Environmental nor Riverside County Environmental Health representatives requested advice from Witness-3 regarding contaminated soil and did not accept any advice from him in regard to the method for disposing of the contaminated soil. Therefore, the allegation that Witness-3

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exceeded his authority by giving advice about disposing of the contaminated soil is not substantiated.

173. Complainant's own conduct merits consideration. As a trained HAZMAT Incident Commander, he was qualified to determine whether the site was safe to enter on Thursday, yet he stated he relied on Witness-3' assurances of safety despite believing Witness-3 was not qualified to address a HAZMAT incident. He did not raise any concerns at that time, although it should be noted that he remained on the Lake side of the road, well away from the point of origin of the spill. Later, he tried to convince the IO and others of his perception that Witness-3 had misled him, but the preponderance of the evidence shows his perception was incorrect.

174. Several witnesses questioned whether prison officials tried to conceal something about this incident, suggesting the chemical was chlorine rather than sodium hypochlorite, or disputing the amount of the spill. The perceived indifference to Navy concerns on Wednesday and the strong smell of chlorine in the air persisting through Friday appear to be the cause of these concerns.

175. The IO was unable to develop evidence to support such concerns, and NAVINSGEN staff who spoke to prison officials found them remarkably cooperative and candid. While NAVINSEGEN cannot rule out the possibility that some pertinent evidence was overlooked, the preponderance of the evidence supports a finding that prison official accounts of what happened are accurate.

176. NAVINSGEN does note that the repeated incorrect references to "chlorine" rather than "bleach" probably added to the confusion in this case. Indeed, it is not apparent from the record whether anyone clearly and unambiguously told Complainant the substance involved in the incident was bleach, not chlorine.

177. EPA Region Nine has cognizance over HAZMAT spills in the area where the prison and Det Corona are located. With the assistance of the EPA Office of Inspector General, NAVINSGEN identified three subject matter experts in the San Francisco Region Nine office, provided them the draft report, exchanged emails, and spoke to one of the experts by telephone.

178. After reading the draft report, the EPA expert said the spill did not appear to be reportable under CERCLA or the Emergency Planning and Community Right to Know Act, which is

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triggered by the CERCLA reporting requirement. She noted that, given the amount of dilution in this case, the reportable quantity would be much greater than 100 pounds or 80 gallons. She observed that, given the amount of water added to the chemical, one reasonably could question whether it could still be called a sodium hypochlorite solution at all. She also noted that EPA applies a "de minimus" standard to evaluate spills that reasonably could be invoked in this case. She confirmed EPA would treat the prison, the source of the spill, as the lead agency for reporting and clean-up.

179. Complainant did not take exception to the facts or substantive findings in the report, and expressed some relief that Witness-2 is no longer with the Fire Brigade. He did not suggest the addition of any other information, other than to note that his concern over Witness-3' disrespectful treatment extended to a disagreement over Complainant's right to read and make entries in the fire station log mentioned in this report.

Conclusion

180. The allegation that Navy personnel responding to a December 2006 chemical spill improperly secured the site, in violation of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response is substantiated with respect to Witness-2, and not substantiated with respect to everyone else involved in this matter.

Allegation Two

That Navy personnel improperly permitted prison personnel to clean up the spill, in violation of 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, Subpart E, Hazardous Substance Response.

Findings

181. The facts set forth in Allegation One are pertinent to this allegation and are incorporated by reference.

182. Excerpts from 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, include:

40 CFR 300.400 General. (a) This subpart establishes methods and criteria for determining the appropriate extent of response authorized by CERCLA [Comprehensive

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Environmental Response, Compensation, and Liability Act] and CWA [Clean Water Act] section 311(c): (1) When there is a release of a hazardous substance into the environment; or (2) When there is a release into the environment of any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare of the United States.

40 CFR 300.410 Removal site evaluation. (a) A removal site evaluation includes a removal preliminary assessment and, if warranted, a removal site inspection. (b) A removal site evaluation of a release identified for possible CERCLA response pursuant to [40 CFR] 300.415 shall, as appropriate, be undertaken by the lead agency as promptly as possible....(c) (1) The lead agency shall, as appropriate, base the removal preliminary assessment on readily available information. A removal preliminary assessment may include, but is not limited to: (i) Identification of the source and nature of the release or threat of release;...(iv) Evaluation of factors necessary to make the determination of whether a removal is necessary....

40 CFR 300.415 Removal action. (a) (1) In determining the appropriate extent of action to be taken in response to a given release, the lead agency shall first review the removal site evaluation, any information produced through a remedial site evaluation, if any has been done previously, and the current site conditions, to determine if removal action is appropriate.... (e) The following removal actions are...appropriate in the types of situations shown... (2) Drainage controls, for example, run-off or run-on diversion-where needed to reduce migration of hazardous substances or pollutants or contaminates off-site or prevent precipitation or run-off from other sources, for example, flooding, from entering the release area from other areas;...(6) Excavation, consolidation, or removal of highly contaminated soils from drainage or other areas-where such actions will reduce the spread of, or direct contact with, the contamination;....

40 CFR 300.5 Definitions.

Discharge as defined by section 311(a) (2) of the CWA [Clean Water Act], includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping

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of oil, but excludes discharges in compliance with a permit.

Release as defined by section 101(22) of CERCLA, means any spilling...discharging...or disposing into the environment....

Remove or removal as defined by section 311(a)(8) of the CWA, refers to containment and removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare of the United States (including, but not limited to, fish, shellfish, wildlife, public and private property, and shorelines and beaches) or to the environment.

40 CFR 300, Appendix D, Appropriate Actions and Methods of Remedying Releases. (b) In response to contaminated soil, sediment, or waste, the following types of response actions shall generally be considered: removal, treatment, or containment of the soil, sediment, or waste to reduce or eliminate the potential for hazardous substances or pollutants or contaminants to contaminate other media (ground water, surface water, or air) and to reduce or eliminate the potential for such substances to be inhaled, absorbed, or ingested.

Discussion and Analysis

183. The evidence establishes that the prison accepted responsibility for the spill on the afternoon of Wednesday, 6 December 2006 and diverted the flow of liquid away from Navy property that day. It knew the nature of the spill and properly accepted the role of "lead agency" for any HAZMAT clean-up that might be required. Given the nature and extent of the spill, the contaminated soil could have remained in place and the chemical would have dissipated over time. Concern over a heavy rainstorm predicted for the weekend of 9-10 December led the County HAZMAT specialist to agree with Navy's proposal to create a larger earthen berm and to bag the top layer of contaminated soil. Prison officials may not have thought these actions were necessary, but they agreed to undertake them, and they were accomplished that day.

184. The evidence establishes that the prison personnel, including prisoners, who performed the work were properly HAZMAT

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trained, qualified, and equipped. They were led by a state employee who is a certified HAZMAT specialist. The protective clothing they wore was appropriate for the circumstances.

185. The contaminated soil, which was simply moved to another side of the hill and spread out to dry, could have remained in place, but for concerns about the weather. The anticipated weekend rainstorm did not occur.

186. 40 CFR 300 states a "removal site evaluation" includes a "removal preliminary assessment," based on readily available information and it may include identification of the source and nature of the release and evaluation of the magnitude of the threat. The removal site evaluation shall be terminated if the lead agency determines the amount, quantity, or concentration released does not warrant federal response. The Riverside County Health Department HAZMAT Specialist made this determination, without objection from prison or EPSO personnel. His report serves to document the removal site evaluation.

187. Appendix D of 40 CFR 300 indicates that an appropriate action in response to contaminated soil is removal to reduce or eliminate the potential for contamination of water. On 8 December, prison inmates removed the soil and placed it in plastic bags. The residual from the spill was not considered hazardous, since there was a relatively small amount of sodium hypochlorite involved, and it was dissipating into the air over time. Therefore, no trained HAZMAT team was required for the clean-up effort, although one was employed for that purpose. The bagged soil was moved to the back side of the hill to ensure the ecosystem of the lake would not be disturbed in case there were traces of residual sodium hypochlorite in the soil which could be washed into the lake by rainfall.

188. Although the OSC complaint is couched in terms of concern for the prisoners, Complainant's internal Navy communications indicate that by Monday 11 December 2006 he was contending his visit to the site on Thursday 7 December 2006 endangered him. Complainant apparently never sought medical assistance, however, and there was no other evidence sufficient to support this claim. Witness-3' testimony that Complainant did not mention any concerns or display any symptoms on Thursday night, coupled with Complainant's own failure to mention any symptoms on Friday, also casts doubt on his assertions.

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189. NAVINGEN does find credible Witness-5's statement that he experienced symptoms for several days, but he was on site the day of the spill for several hours. By contrast, Complainant did not go to the site until the afternoon of the following day, was there for a relatively short period of time, and remained on the Lake side of the road.

190. In addition, the MSDS for sodium hypochlorite indicates the main concern is for physical contact with the chemical; respirators, for example, are not normally necessary. Given that Complainant's potential exposure occurred in a well-ventilated area outside, it is unlikely he suffered any ill-effects. Nonetheless, Witness-13 and Witness-6 both cautioned that some people are especially sensitive and may have adverse reactions in circumstances others would not find troubling. The best that can be said here, then, is that the preponderance of the evidence developed during the investigation does not support a finding that Complainant suffered any adverse effects from his activities at the site of the spill.²⁷

Conclusion

191. The allegation that Navy personnel improperly permitted prison personnel to clean up the spill, in violation of 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, Subpart E, Hazardous Substance Response, is not substantiated.

Allegation Three

That the Det Corona Hazardous Substance Spill Response Plan is out of date and no longer provides adequate guidance for a spill response, in violation of OPNAVINST 5090.1B, Navy Environmental and Natural Resources Program Manual.

²⁷ As noted earlier, Complainant said he has allergies and occasional nosebleeds. Moreover, Witness-3 testified Complainant uses a heavy concentration of bleach when cleaning the firehouse without appearing to suffer any ill-effects, even when the smell of chlorine becomes quite strong. Finally the Department of Labor denied Complainant's workers' compensation claim for insufficient evidence of any injury.

Findings

192. OPNAVINST 5090.1B, Environmental and Natural Resources Program Manual dated 4 June 2003, with Changes 1-4, includes the following at Chapter 10, Oil and Hazardous Substance Spills:

Paragraph 10-6.8. Shoreside Commanding Officers (Designated FICs, Facility Incident Commanders). Shoreside Commanding Officers...shall...b. Develop, annually review, and periodically update facility plans in a format prescribed by [NAVFAC] and coordinate these plans with the NOSC [Navy On-Scene Coordinator] spill contingency plan....e. Properly train assigned staff responsible for OHS response. Shoreside Commanding Officers who are not designated FICs have the same requirements with the exception of coordinating the plans with the NOSC spill contingency plan.

193. COMNAVREGSWINST 5090.1C, Oil and Hazardous Substances (OHS) Pollution Contingency Plan, dated 16 November 2000,²⁸ includes the following:

1. Purpose. This instruction is the contingency plan for Commander, Navy Region Southwest, as the Navy On-Scene Coordinator (NOSC), for planning and response to oil and hazardous substance (OHS) pollution incidents originating from U. S. Navy facilities and vessels.

6. Geographic Assignment....b. Reference (b) [CINCPACFLT 5400.12N, Command Support and Coordination of Shore Activities] designates FICs and areas of responsibility. Geographic AOR assignments and specific responsibilities are listed below:...(8) Commanding Officer, Naval Weapons Station, Seal Beach...and Naval Weapons Station, Seal Beach Detachment Fallbrook." Under "Action" the instruction states: "All commands in the Commander, Navy Region Southwest area of responsibility shall review the policy and procedures described in this plan and take appropriate actions to ensure compliance with this instruction.

²⁸ This CNRSW Instruction was superseded in April 2007 but was used for this investigation because it was the instruction in effect when the HAZMAT incident in question occurred and when the complaint was filed.

2.3.5. FIC Responsibilities. Facility Commanders, designated as Facility Incident Commanders (FICs) shall:...**Develop** and implement OHS facility contingency response plans as required.... **Develop** facility training and exercise plan based on the calendar year. **Submit** training plan to NOSC annually by 1 October.... **Coordinate and conduct** required training, drills, and exercises.

194. The Hazardous Substance Contingency Plan and Emergency Procedures for Naval Warfare Assessment Center, Corona, California²⁹ was created for Navy by Engineering-Science Inc. in May 1993, under Contract No. N68711-92-D4656. The Record of Review and Amendments page on the copy provided to the IO shows no record of review or changes. Section 1, Response Organization, includes the following:

Paragraph 1.1, Introduction: This Contingency Plan and Emergency Procedures is required by and prepared in accordance with 40 Code of Federal Regulations (CFR) 262, 40 CFR 264, the Naval Energy and Environmental Support Activity (NEESA) Manual 7-030 and the Department of Navy OPNAVINST 5090.1A. Its intent is to provide clear direction in the event of an emergency at specific activity sites that generate and store hazardous materials and wastes.

Paragraph 1.3, Spill Response Activities. The designated Fire Chief is the individual assigned the responsibility for directing and coordinating all spill response actions.... The Fire Department provides a coordinated response to control, contain, recover, and restore the environment from all hazardous spills.

Paragraph 1.4, Fire Department. The on-site Fire Department consists of two trained Hazardous Material/Waste Handlers....1.4.1. Fire Chief. The on-site Fire Chief will function as follows: 1. Responsible for directing and coordinating all on-scene spill response actions. 2. Activate or authorize activation of all or part of the necessary response team members as required during an incident

²⁹ This is the full name of the Det Corona Hazardous Substance Spill Response Plan. Naval Warfare Assessment Center, Corona, California was the name of Det Corona before it was realigned under CNIC.

response. 3. Coordinate all notification to Seal Beach. 4. Coordinate all required assistance from federal, state, or local response organizations and private contractors.

195. The FY 2006 Environmental Quality Self-Assessment (EQA) Report for NWS Seal Beach and Detachments Concord, Corona, and Fallbrook, dated 19 Jan 2007, includes the following:

This self-EQA report is provided by the Environmental Programs and Services Office (EPSO) at the Weapons Station Seal Beach (WPNSTA SB) as an annual self-assessment of the health of the environmental programs of the WPNSTA SB Command and Detachments Concord, Corona, and Fallbrook. This report is made to the Commanding Officer, Detachment Directors/Officer-In-Charge of WPNSTA SB [Seal Beach] in support of an Environmental Management System (EMS) Review and in accordance with OPNAVINST 5090.1B.

The 2006 Environmental Quality Self-Assessment (EQA) was performed to gauge the effectiveness of the environmental program, identify areas for improvement and list major accomplishments. Sites evaluated included Seal Beach, Corona.... The period covered by the assessment was 1 October 2005 to 30 September 2006.

The EMS ISO [International Standards Organization] 14001 Gap analysis is an assessment of the overall environmental management process and scores 16 different areas such as: environmental policy....communication; emergency preparedness and response; and training, awareness, and competence; among others. Each area is given a score based on the percentage of completeness of the program.

196. The Executive Summary includes an Assessment Summary Table which shows, on a scale of 1 - 4...Detachment Corona rates 1.0 in Ecosystem Integrity and 1.9 in Management Effectiveness. This table includes the following footnote: "Many of the high risk corrective actions for Corona were implemented prior to this assessment period." It also states:

A. Highlighted Management Concerns - Issues and concerns generated by the above assessment tools are summarized as follows. 1. Expanded Responsibilities & Lack of Consistent/Sufficient Staffing - The assignment of new responsibilities and insufficient resources were further

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exacerbated in FY06 due to a high staff turn over rate. The EPSO focus from mid FY05 through FY06 was to re-evaluate compliance and associated work load requirements in light of new assignments and changing environmental requirements. Further focus was aimed to re-stabilize contracted support and government staff. Therefore, progress to address program level issues was greatly hampered.

IV. ISSUES, CONCERNS and ACCOMPLISHMENTS. A.

Environmental Management Concerns and Issues. The top four environmental management areas needing the most focus in the short-term to improve the overall health of the EMS are presented below. The major issues and concerns are: 1. Failure of a system, facility, equipment or part that is essential to sustain compliance with environmental requirements....Plans and/or procedures are not effective and/or properly implemented....Document control systems and record retention procedures do not exist or are inadequate....Personnel activities are not held accountable for environmental performance.

197. A list of "Specific Program/Media Concerns" includes "Integrated Natural Resources Management Plan (Seal Beach & Corona)" and "Spill Response Plans." It also states, "Maintenance of an effective spill response team and program is a constant challenge because the response team is comprised of a cross-functional group effort, including military personnel. ...Corona must rely upon off-base assets and expertise to effectively respond to any significant incident."

198. Under "Accomplishments," the document includes an "Environmental Media Summary." The summary identifies the "Detachment Corona Spill Response & Management" as medium risk with a numerical risk score of 5 on a scale of 1-10. The notes for this media risk read as follows:

Oil and Hazardous Substances Spill Response Plan is outdated. Emergency Response System needs to be established. Roles and responsibilities for response team need to be established and trained.

199. According to Witness-20, NWS Seal Beach Administrative Officer, her historical records indicate Det Corona's general and administrative functions were realigned from NWS Seal Beach on about 1 October 1993.

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200. In an e-mail to the IO, Witness-21, NSWC Facilities Department Manager, wrote:

Regionalization occurred on October 1, 2003. I came on board in November of 2003. Prior to regionalization the NSWC Corona's Environmental Program was not aligned under the Facilities Department. Since the installation was regionalized in 2004, Navy Region Southwest has had primary responsibility for updating the spill response plan. In March of 2006, during NSWC Corona's preparation for a Command Performance Inspection (CPI) conducted in July of 2006 [it] was pointed out to the Seal Beach Environmental group that the spill response plan was deficient and needed to be updated.

201. When asked about the existence of a spill response plan, none of the members of the NWS Seal Beach Detachment Corona Fire Brigade was aware of such a formalized plan. They each indicated that their DoD Hazardous Materials Training and Certification dictated the methods of handling a spill.

202. The IO showed Witness-1 a copy of the spill response plan. He said he had never seen it before and had no knowledge of its existence.

203. Witness-16, the EPSO Conservation Program Manager, identified the spill response plan management as one of his four ancillary duties in addition to his primary duty as an Ecologist. He indicated that the copy of the Hazardous Substance Contingency Plan and Emergency Procedures he had previously provided is the only spill response plan the EPSO has been able to locate since Det Corona was regionalized approximately two years ago. He said that the EPSO is aware the plan should be updated. The Detachment Fallbrook plan has just been updated and is currently in the final draft; Detachment Corona is next.

204. Witness-10 is the Director, Environmental Programs and Services Office (EPSO) for NWS Seal Beach and detachments.

205. Witness-10 said, "yes the spill response plan is out of date and needs to be updated." Witness-10 added "we" may be in violation of Navy policy with regard to the spill response plan, but he provided clarifying and mitigating information.

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206. Witness-10 identified the Hazardous Materials Business Disclosure Response Plan as "an inventory of hazardous materials routinely stored and used at an activity that is disclosed, that is given to the local fire authority." He indicated this plan was being updated by Mark Graham's environmental staff when NWS Seal Beach was first assigned responsibility for Corona and this past year Seal Beach Environmental Department updated the plan.

207. He added that when the Seal Beach EPSO staff accepted responsibility for Det Corona, they packed up all the documents, brought them back to Seal Beach for analysis, and created a list and matrix of Det Corona issues. He said EPSO had found it difficult enough to keep up with the previous workload; it became even more difficult when EPSO took responsibility for Det Corona without receiving any additional staffing or resources.

208. In relation to the requirement in OPNAVINST 5090.1B for the Commanding Officer to annually review spill response plans, Witness-10 indicated that he believes this review is covered in the "very thorough Environmental Quality Assessment," which is put in a formal document. Witness-10 indicated this document includes a list of what the environmental department feels the program deficiencies are. He added, "We've done some root cause analyses. We've looked at our overall management system as well as individual program areas...It did include Corona."

209. Witness-10 added "not having large quantities of HAZMAT located at Corona and having gotten rid of the main hazard of, you know, the halon canisters, getting [HAZMAT] waste reorganized and compliant and then focusing on the battery room, I mean those were...the sort of major things that really stuck out, I would say, as safety or compliance hazards or risks. Now we're going through the next cycle and we're saying...now let's really get the HAZMAT tightened up into a HAZMAT program. But most of the HAZMAT program is the tenant's responsibility."

210. The IO informed Witness-10 the major concern of the investigation was to determine if a significant danger exists to public health and safety. He responded "we're not in conformance with the Navy policy to have a response plan, that's certainly true. But...if you look at our HAZMAT business disclosure and the quantities...I think that right there is gonna tell you that we don't pose a significant risk. And if we did, the State of California would require us to...have a Risk Management and Prevention Plan, RMPP. So, I would say that since we're not required to have an RMPP, the foregone

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conclusion would be that based upon that...and knowing what I know of the inventory out there, we don't [pose any significant danger to public health and safety]."

Discussion and Analysis

211. OPNAVINST 5090.1B requires that each facility have a spill response plan which is reviewed annually and updated periodically. The EPSO recognizes the plan is not current and the NWS Seal Beach Commanding Officer, Det Corona OIC, and CNRSW Environmental have been apprised of the situation through the annual EPSO self-assessment.

212. However, there are some mitigating circumstances. The plan was developed at about the time Corona was realigned from Seal Beach in 1993. The base operating support functions were realigned once again under Seal Beach in July 2005. At the time Seal Beach took responsibility for the Det in July 2005, no documents were provided indicating the plan had been reviewed or updated during that 12 year period and the only person who apparently had any knowledge of whether updates existed is deceased. The testimony indicates EPSO has been working on many issues related to Det Corona since July 2005, dealing first with those that are the most serious and pose the greatest potential hazard to people and the environment. A prioritized list of future projects includes revising the Det Corona Hazardous Substance Spill Response Plan. The section in this report describing "actions planned or taken" provides the most current status of this action as of the date of this report.

213. The existing spill response plan states if an incident occurs that exceeds the capability of the base fire department, mutual aid will be sought. That requirement remains current, and therefore in the case of a hazardous substance spill, resources are available for immediate response through the mutual aid agreement with the City of Norco.

Conclusion

214. The allegation that Det Corona Hazardous Substance Spill Response Plan is out of date and no longer provides adequate guidance for a spill response, in violation of OPNAVINST 5090.1B, Navy Environmental and Natural Resources Program Manual, is substantiated. However, this deficiency does not pose a specific or substantial danger to public health and safety and has been identified for correction.

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List of Actual/Apparent Violations

215. Violation of 29 CFR 1910.120, Occupational Safety and Health Standards related to Hazardous waste operations and emergency response.

216. Violation of OPNAVINST 5090.1B, Environmental and Natural Resources Program Manual dated 4 Jun 2003.

Actions Planned or Taken

217. Management developed a Standard Operating Procedure for spill response and issued a new Spill Response Plan for Det Corona at the end of December 2007.

218. Management has scheduled a "table top" spill response drill for NWS Seal Beach Detachment Corona to take place on 24 January 2008.³⁰

219. Witness-1, the Det Corona OIC, is leading an effort to increase Det Corona emergency response and management capabilities that includes additional training and the creation of an emergency management plan, which is nearing completion. The OIC himself has completed 16 courses offered by FEMA, including several that pertain to the National Response Plan (NRP) and the National Interagency Management System (NIMS). The OIC, Fire Brigade, and Police supervisors are scheduled to take additional courses this year, and fire brigade and police personnel will be required to take course in the NPR and NIMS.

Personnel Actions Taken

220. Fire Witness-2 retired 3 August 2007, while adverse action against him was under consideration. In relation to the out-of-date spill response plan, there are numerous people with some liability over the past 14 years; those were assigned to another command before Det Corona was established under CNIC in 2005 and no action is contemplated against any of them.

³⁰ A table-top drill does not include the actual spilling and clean-up of a mock hazardous substance, but it does require the various participating organizations to go through the decision-making process as simulated events develop.

Observations

221. Witness-1's initial email on 6 December 2007 appropriately alerted and mobilized all resources available to him that may have been necessary to assist in the spill response effort. Had Complainant been at work that day, it is possible the initial HAZMAT response would have been better, and more appropriate, than that provided by Witness-2. Witness-5, while not directly responsible for environmental support in this instance, appropriately provided immediate assistance that led to the identification of the hazardous substance involved and reasonably prompt action by the prison to divert the spill away from Navy property. The prison was responsive to Navy environmental concerns and undertook appropriate clean-up actions to preclude environmental damage to Lake Norconian.

222. Had the spill response plan been kept current with changes in organizational structure and procedures, many actions taken by the IO would have been done at the time of the incident. For example, someone should have requested the prison provide a copy of the MSDS; copied prison and County Environmental reports and taken samples for testing but, in the absence of an effective plan, everyone assumed someone else did that. After the cleanup, Navy officials should have asked prison officials to describe their plans and efforts to prevent another spill. Finally, no single individual maintained a complete official file on the incident to include photos, requests and recommendations made to the prison, reports filed, and lessons learned. Fortunately, several people retained their own records and the IO was able to collect them during the investigation.

223. Two policy issues relate to the complaint leading to this investigation. First is a concern that Det Corona has reduced its firefighting and other emergency response capabilities. This concern must be evaluated in the context of a nationwide trend among federal, state, and local agencies to coordinate and combine emergency response capabilities to improve efficiency and conserve resources. This investigation is not the appropriate mechanism for debating that matter.

224. Second, some concerns over Navy's response to this spill are based on the proposition that Navy should have been the lead agency. Had the prison refused to act in this case, that might have become necessary. But given the prison's acceptance of its responsibility for the spill, it would have been wasteful for Navy to perform clean-up operations undertaken by the prison.

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225. NAVINSGEN wishes to express its appreciation for the cooperation and assistance provided by the state and county personnel who consented to be interviewed, and for their willingness to provide copies of their records to support the investigation. NAVINSGEN also wishes to express its appreciation to EPA Region 9 HAZMAT specialists who reviewed and commented on the report.

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