



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

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TREASURE ISLAND
SSIC NO. 5090.3.A



Arnold Schwarzenegger
Governor

April 19, 2007

Mr. James B. Sullivan
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POINT PAPER FOR REDEFINING SITE BOUNDARIES FOR INSTALLATION
RESTORATION SITE 6, FORMER FIRE TRAINING SCHOOL, NAVAL STATION
TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA

Dear Mr. Sullivan:

The Department of Toxic Substances Control (DTSC) has received and reviewed the *Point Paper for Redefining Installation Restoration Site 6 Comprehensive Environmental Response, Compensation, and Liability Act Boundary* dated January 22, 2007. Site 6 is a former fire training school at the former Naval Station Treasure Island, San Francisco, California. The enclosed DTSC memorandum dated April 19, 2007 identifies DTSC comments and provides recommendations to fill information gaps. DTSC is ready to work with the Navy to finalize the Point Paper; however, the Navy may determine that boundary redefinition is not appropriate at this time.

If you have any question, please contact me at (510) 540-3770.

Sincerely,

Henry Wong
Remedial Project Manager
Office of Military Facilities

Enclosure

cc: See next page.

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MEMORANDUM

TO: Henry Wong
Remedial Project Manager
Office of Military Facilities

FROM: Eileen Hughes, PG *Eileen Hughes*
Engineering Geologist
Office of Military Facilities

REVIEWED BY: Michael O. Finch, PG
Senior Engineering Geologist
Geologic Services Unit

DATE: April 19, 2007

SUBJECT: POINT PAPER FOR REDEFINING SITE BOUNDARIES FOR
INSTALLATION RESTORATION SITE 6, FORMER FIRE TRAINING
SCHOOL, NAVAL STATION TREASURE ISLAND, SAN
FRANCISCO, CALIFORNIA

At your request, I have reviewed Point Paper for Redefining Installation Restoration Site 6 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Boundary (January 22, 2007). The Point Paper (PP) proposes re-designation of the northern portion of Site 6 (a CERCLA site) to Site 6A (a petroleum-only site). Redefining the site hinges on evaluating whether any CERCLA contaminants exist on proposed Site 6A. The focus of this limited review is on site history and on the extent of contamination as presented in the Point Paper.

Background

Site 6 was used as a fire fighting training area. In 2005, the Site 6 boundary was extended to the shoreline to include newly discovered contamination in Subarea 3. However, historic fire fighting training activities extended over areas outside Site 6, to include Building 292 (adjacent to Site 6), Building 461 (adjacent to Site 6), and Building 462 (on Site 32).

At Site 6, gasoline and diesel for firefighting training were stored in six underground storage tanks (USTs). Two USTs (240A, 240B) were inside proposed Site 6A and four USTs (248A, 248B, 248C, 248D) were outside proposed Site 6A. Site features are shown on Figure 4-1 of the Corrective Action Plan (CAP, January 28, 2002).

A concrete collector trench surrounded the fire fighting training area (called the Central Training Area). The trench conveyed "firefighting waste water" to surge/sump pits connected to oil-water separators. After oil-water separation, waste oils were conveyed to USTs 248C (aka UST 240C) and 248D (aka UST 240D) and then to an aboveground tank (AST 248).

AST 248 and six USTs (and appurtenances) have been removed and contaminated soil has been excavated. In the northern section of the Central Training Area, the Helicopter Training Area and the Portable Aircraft Area were also excavated. All excavations were substantial.

The northern section of the Central Training Area extended into proposed Site 6A and the collector trench traversed proposed Site 6A in this area. A former burn pit and a suspected AST 446 (aka 240) were located in the northwestern Central Training Area within proposed Site 6A. The former burn area has not been investigated. Near suspected AST 446, a few soil and grab groundwater samples were collected and total petroleum hydrocarbon as diesel (TPH-d) was measured above 10,000 mg/kg; however, the area was not further investigated and was not excavated.

Outside proposed Site 6A, another smother pit was located at the southeastern end of the Central Training Area and a suspected UST M was located along the site eastern boundary. The smother pit and suspected UST M have not been fully investigated.

Along with volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs), which are commonly associated with petroleum, dioxin is the primary CERCLA contaminant associated with incendiary activities. Although petroleum-contaminated soil has been removed, soil with elevated dioxin remains on site.

Currently, Site 6 is used as a staging and soil stockpiling area for remedial activities at Site 12. All buildings have been removed, but building foundations remain.

UST cleanup assumed industrial reuse: however, residential reuse is indicated for proposed Site 6A in the draft Environmental Impact Report (Figure 2-5a, April 12, 2005).

General Comment

The Point Paper proposes that the northern section of Site 6 be re-designated as a petroleum-only site, under the direction of the Regional Water Quality Control Board (RWQCB). However, the evidence presented does not fully support the assumption that Site 6A was impacted solely by petroleum compounds, as discussed in the following comments. Therefore, the proposed re-designation is not recommended.

Additional information is requested and more investigation is recommended in Specific Comments. DTSC will work cooperatively with the Navy to determine locations and analytes for additional investigations requested below.

During preparation of this memorandum, review of other site documents was limited and cursory: so, the recommendations provided herein may be modified as additional information is reviewed and/or presented.

Specific Comments

Hazardous waste

- 1) "Firefighting wastewater" conveyed by the collector trench qualifies as hazardous waste until proven otherwise. Oil-water separators are hazardous waste treatment systems by definition. Other hazardous waste management activities related to fire fighting training activities occurred on Site 6 (e.g., storage). Hazardous substances (e.g., CERCLA contaminants, including dioxin), are assumed to be present in wastewater (and may exist elsewhere on site).

Recommendation: Please describe the hazardous waste management activities at Site 6A (e.g., waste generation, waste storage), including regulatory status (i.e., with respect to treatment, storage, and waste generation).

Dioxin

- 2) A former burn pit located on proposed Site 6A has not been investigated. Dioxin has been measured at elevated concentrations in Site 6 outside of proposed 6A (e.g., in Subareas 1 and 2). Nearby areas are also contaminated with dioxins. However, no samples from proposed Site 6A have been analyzed for dioxins. Therefore, it has not been demonstrated that proposed Site 6A is dioxin-free.

Recommendation. Collect soils samples to determine if proposed Site 6A is contaminated with dioxin.

- 3) Activities associated with dioxin (e.g., incineration, firefighting and other incendiary activities) were conducted on Site 6 and on nearby sites. Aerial deposition of dioxin due to such activities may have extended into proposed Site 6A.

Recommendation. Include locations of incinerators (e.g., on adjacent wastewater treatment plant and on Site 32) and other incendiary activities on a figure.

- 4) Aerial deposition of dioxin-contaminated ash is a concern. To evaluate the extent of aerial deposition associated with incendiary activities, area-wide results for dioxin must be reviewed. However, dioxin results for Subarea 3 and for other nearby sites are not included.

Recommendation. Include dioxin results for Subarea 3 and nearby sites on a figure.

- 5) Areas that have been paved or covered throughout site history may have been protected from aerial deposition of dioxin compounds. This issue was raised by Gary Foote at the Base Closure Team (BCT) meeting on February 6, 2007. In 1969, most of proposed Site 6A appears to be bare ground (aerial photo in Figure 2). And, in 2006, a large portion of proposed Site 6A appears to be bare ground (i.e., the "shell covered" parking lot is considered bare ground) and Buildings 423 and 446 are shown as removed (aerial photo in Figure 3). The dates of construction and removal of Buildings 423 and 446 (and other buildings and structures on proposed Site 6A) are not provided. That is, a history of surface cover through the time of potential aerial deposition is not provided. Consequently, aerial deposition throughout the site, including beneath historic structures, has not been ruled out.

Recommendation. Provide a summary of surface condition and building footprints through time, supported by aerial photographs.

- 6) Association of ash with dioxin contamination was discussed at the BCT meeting on February 6, 2007. Outside of proposed Site 6A, confirmation sampling in UST removal areas was biased towards "ash, soot, and dark-colored soil" (PP, page 3). Inside proposed Site 6A, multiple locations have dark soils (PP Attachment, Table 2, page 14): however, these samples were not analyzed for dioxins. The PP discounts the darker soils (because the observations were for soils at 5 to 7 fbs) and concludes that dioxins are not likely at proposed Site 6A. This argument is not persuasive. Moreover, since soil borings were conducted prior to discovery of dioxin at the site, it is possible that field crews were not alerted to the importance of observing the presence or absence of burnt materials and other visual indications of incendiary activities.

Recommendation. Sample soils and analyze for dioxin.

- 7) In addition to aerial deposition, incendiary activities conducted on bare ground may result in dioxin contamination. The former burn pit in proposed Site 6A (1969 aerial photo) and surface or pit burns at other locations may have been operated on bare ground. For example, "an apparent surface burn" was uncovered during clearing and grubbing for UST removals (PP, page 3): prior to the accidental discovery, the

existence of the surface burn was not even suspected. Other unknown surface burn or shallow pit areas may exist.

Contaminated soils (from surface burns or shallow fire pits) may have been buried or redistributed during site grading (as at Site 32). At Site 6, only surface and very shallow samples were analyzed for dioxin (as shown on Figures 4 and 5). The deepest sample collected was from 1.3 feet below the ground surface (fbgs). The presence of dioxin even at 1 fbgs indicates that aerial deposition is not the only process operating at Site 6. At most locations, the extent of dioxin at depth has not been determined.

Also, it is not clear whether the samples (i.e., primarily confirmation samples from excavations) were discrete or composite samples. In general, DTSC prefers discrete samples in investigatory efforts to avoid sample dilution.

Recommendation. Investigate the former burn area in proposed Site 6A. Elsewhere on the site, to test the hypothesis regarding aerial deposition, and to determine the vertical extent of contamination, collect surface and deeper samples and analyze for dioxin. Clarify which (if any) samples were composites by using a distinguishing color and a prefix/suffix which indicates the number of subsamples composited.

- 8) Dioxin (and other contaminants) deposited on both paved and unpaved areas may be conveyed via the storm water system to other locations. Leakage from the trench and the storm system may also be of concern – especially since water from the oil-water separator was historically disposed to the Bay and other contaminants may also have been discharged during storm overflows.

Recommendation. Include a summary of storm system investigations. Show utilities on a figure. Clarify whether outfall areas have been investigated for dioxin and other CERCLA contaminants.

Site History

- 9) An historic aerial photo from 1969 is used as the background for Figure 2. The photo is fuzzy and portions are obscured by overlying data, so features cannot be readily distinguished. However, stained areas appear to exist in proposed Site 6A (and elsewhere). For example, staining is evident in the former burn pit area, extending into proposed Site 6A. Another example: a linear feature suggesting a trench crosses proposed Site 6A and proceeds south adjacent to the eastern Site 6 boundary. And, various unidentified structures appear to be scattered about Subarea 3.

Recommendation. Include aerial photos through time of operation: delineate features suggestive of contamination. Summarize site history for Subarea 3.

- 10) Site activities (e.g., in Buildings 423 and 446) have a bearing on the decision to re-designate as Site 6A. However, activities in the buildings are not described.
Recommendation. Describe operations at former Buildings 423 and 446 (and other buildings and structures on proposed Site 6A), with chemicals used and stored. Include building plans, with operations designated (e.g., storage sheds, mixing areas, utilities).
- 11) The presentation of fire fighting training operations is not complete. For example, significant Site 6 features are not included on figures, including a former burn pit, surge/sump pits, oil-water separators, a smother pit, and UST M. Several features shown on CAP Figure 4-1 (e.g., a former burn pit, a smother pit, and UST M) are not discussed.
Recommendation. At the minimum, features described in the CAP should be discussed and included on figures. Clarify the current status of sumps, oil-water separators, smother pits, and burn pits (with piping and appurtenances). Explain the difference between a fire burn pit and a smother pit.
- 12) A large area was used for fire fighting training activities, including nearby areas outside Site 6.
Recommendation. Include a tabulated summary of all current and historic buildings in the fire fighting training areas (e.g., Buildings 292, 461, and 462) with uses and operations – and with all chemicals used and stored. Include locations of all buildings on a figure. Include operational areas outside of buildings.

Criteria

- 13) For UST excavations, industrial criteria were used for total petroleum hydrocarbon (TPH) and U.S. EPA's industrial preliminary remedial goals were used for BTEX (i.e., benzene, toluene, ethylbenzene and xylene) and other compounds. Are cleanup criteria from the CAP (January 2002) still valid in 2007? Were all appropriate pathways considered?

For example: Ecological criteria were not considered with respect to soils: so wetlands creation will be prohibited (i.e., via institutional controls) or exposure pathways controlled (i.e., via engineering controls).

Another example: With respect to the inhalation pathways, current residential and industrial criteria are lower than earlier criteria. Has the extent of volatile organic compounds (including naphthalene, 2-methylnaphthalene, and trimethylbenzene) been determined with respect to more recent criteria? Were detection limits for volatiles appropriate (in all media)?

With respect to soils, the intent of the TPH remediation was to remove "bulk product". RWQCB's risk-based screening levels (RBSLs: CAP Table 3-1) were not selected as criteria. For example, RBSLs for TPH as gasoline (TPH-g: 400 mg/kg) are lower than CAP cleanup criteria (5,900 mg/kg).

The Navy proposed no further action (NFA) for the TPH soil cleanup: but NFA was not granted by RWQCB because additional protective measures would be required of future owners. The Navy said (Response to Comments on the Final Closure Report, dated December 16, 2005): "The Navy acknowledges that there is a future risk (via direct contact exposure and indoor air inhalation) to workers and/or residents if the site is developed in the future and agrees that proper soils management (for soil handling in the event of an excavation) and vapor intrusion modeling (for future building designs) will be necessary". The RWQCB said: "We cannot concur with the Navy's proposal...it appears that the Navy's proposal actually amounts to the selection of a remedy and deferral of the remedy to some unspecified time in the future."

Also: With respect to groundwater, CAP cleanup criteria differ from more recent criteria cited in a letter from Jon B. Marshak (Central Valley Water Quality Control Board) to Technical Staff and Other Interested Parties, titled Beneficial Use-Protective Water Quality Limits for Components of Petroleum-Based Fuels (April 1, 2004). For example, Marshak's TPH-g criteria (21 to 5 ug/L) are lower by orders of magnitude than CAP cleanup criteria (1,400 ug/L).

Recommendation. Review the approach to the investigation and excavation of USTs and evaluate results with respect to potential reuses and current criteria. Determine whether investigations and excavations are adequate for potential site reuses and whether appropriate pathways were considered.

Extent of CERCLA Contamination

14) The focus of investigations at proposed Site 6A was on TPH. The facts that 1) dioxin was left in place and 2) known areas of possible dioxin contamination were not investigated (e.g., former burn pit and smother pit shown on CAP Figure 4-1) clearly indicate that CERCLA investigations were expected to follow UST removals. Other points are considered below.

- a) Areas of stained ground, suggestive of contamination, exist in proposed Site 6A as shown on at least one aerial photo.
- b) A large excavation was conducted at the Helicopter Training Area and the Portable Aircraft Area, which are inside the Central Training Area, directly adjacent to proposed Site 6A. Confirmation samples from the Helicopter Training Area are shown on Figure 4, with results for dioxin analyses. However, no confirmation samples are shown for the Portable Aircraft Area, which is nearer to

proposed Site 6A. Moreover, no samples were collected from the portion of the Central Training Area which is in proposed Site 6A: the collector trench crosses proposed Site 6A in this area.

- c) Historically, it was common practice to dispose of various waste oils (and off-spec materials) by burning – including burning during fire fighting training. It is not clear whether waste oils and other materials were burned or disposed at Site 6. And, it is not clear whether waste oils (and other hazardous materials and hazardous wastes) were ever stored in tanks or in other areas on – or adjacent to – proposed Site 6A.
- d) Maximum values from proposed Site 6A are shown on Attachment A, Table 1. But the data as presented are not sufficient for demonstrating that the investigation was sufficient for CERCLA contaminants. For this, it is necessary to evaluate sample distribution with respect to site operations, and to consider sampling frequency, analytes, and depths of samples.
- e) Maximum values for excavation confirmation samples are presented in Table 2. However, some values of interest are not included. For example, TPH-d greater than 10,000 mg/kg remains in place on proposed Site 6A at 06-HP087 near suspected UST 446 (CAP Figure 4-7).

Recommendation. Provide figures and tables showing the results of previous investigations. Include a statistical data summary for all media (e.g., number of samples collected for each analyte, number of hits, range of concentrations, et cetera). Evaluate sample distribution with respect to site operations and identify data gaps. Collect additional soil samples from proposed Site 6A and analyze for a broad suite of analytes.

Conclusion

The data presented indicate that investigations on proposed Site 6A are not complete with respect to CERCLA contaminants. Most notably, with respect to dioxin, a former burn pit, a portion of the Central Training Area, and the collector trench have not been investigated. That is, the site has not been fully characterized and site history has not been fully evaluated.

Recommendation. At the minimum, collect soil samples at the following locations: 1) former burn pit, 2) northern sector of the Central Training Area, 3) area adjacent to the collector trench, and 4) area near suspected AST 446. Analyze for a broad suite. Propose additional work based on site operations.

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