

**RESPONSES TO REGULATORY AGENCY COMMENTS ON
DRAFT EXPANDED SITE INSPECTION REPORT,
BUILDING 742, FORMER DEGREASING PLANT INVESTIGATION AREA C2,
MARE ISLAND, VALLEJO, CALIFORNIA**

This document presents the U.S. Department of the Navy's (Navy) responses to comments from the California Department of Toxic Substances Control (DTSC), the U.S. Environmental Protection Agency (EPA), and the San Francisco Regional Water Quality Control Board (Water Board) on the "Draft Expanded Site Inspection Report, Building 742, Former Degreasing Plant Investigation Area C2, Former Mare Island Shipyard, Vallejo, California," submitted June 30, 2006. The Navy received comments, addressed as follows, from DTSC on January 25, 2007, from the EPA on January 30, 2007, and from the Water Board on April 3, 2007.

RESPONSES TO DTSC COMMENTS (Comments Provided by Henry Chui)

GENERAL COMMENTS

- Comment:** The Department of Toxic Substances Control has reviewed the Draft Expanded Site Inspection Report for Building 742, Former Degreasing Plant, dated June 30, 2006. The purpose of the report was to evaluate potential sources of volatile organic compounds (VOCs), assess if the storm water system is acting as a preferential migration pathway, and to confirm the presence of contaminants from previously sampling events. Petroleum hydrocarbons, polychlorinated biphenyls (PCBs), VOCs, and metals are present at the site at concentrations that exceed the environmental screening levels. The subject report recommends further investigations and removal actions for the area. DTSC agrees with those recommendations. DTSC also recommends that future investigations and any remedial actions include all possible contamination sources.

Response: In Section 5.2 Conclusions and Recommendations, the report describes plans for further investigation in six bulleted items. The Navy assumes that DTSC concurs with this section and has no additional recommendations.

RESPONSES TO EPA COMMENTS (Comments Provided by Carolyn D'Almeida)

GENERAL COMMENTS

1. **Comment:** The risk assessment concludes that there currently exists an unacceptable risk to industrial workers exposed to vapors from the site. Navy and Lennar need to come up with a plan to identify all buildings and tenants who could potentially be exposed to vapors migrating along the storm drain and utility corridors and take measures to prevent exposure during the short term while site investigations continue.

Response: Risk from vapor intrusion to an industrial worker is based upon inhalation of volatile chemicals released from groundwater or soil gas to indoor air. As described in Section 4.0, this report presents a screening level human health risk assessment, which is a streamlined approach to estimating potential risks using the ratio of maximum detected concentrations to screening levels. To ensure a conservative screening level evaluation, the maximum detected concentrations of volatiles in soil gas and groundwater were assumed to occur uniformly throughout the site.

However, as shown in Figures 10 and 14, elevated concentrations of volatiles in soil gas and groundwater are found in limited, discrete areas without any structures above them. Specifically the elevated concentrations of volatiles in soil gas are found in one area consisting of sample locations D1C85SG014, D1C85SG019, and D1C85SG022. The elevated concentrations of volatiles in groundwater are found in three areas: (1) footprint of the former degreasing plant consisting of sample locations D1C85GB007, D1C85GB008, D1C85GB011, D1C85GB016, and D1C85W01; (2) Manhole D1-C85 consisting of sample locations D1C85GB001, D1C85GB002, D1C85GB003, D1C85GB004, and D1C85W02, and (3) north of Manhole D1-C85 as represented by sample location D1C85W03. Also, as shown in Figure 10, soil gas samples taken within the footprint of Building 742 are all below the environmental screening levels. Therefore, the current unacceptable risk from vapor intrusion is theoretical, unless a structure is built above the area with the elevated volatiles or those elevated concentrations migrate below an existing structure.

While the report concluded that the storm water system can act as a preferential pathway, Figure 10 shows that elevated concentrations of volatiles in soil appear to be found in discrete areas. As shown in Figure 14, the pattern of elevated concentrations of volatiles in groundwater is more complex than the pattern of elevated volatiles in soil and further sampling is recommended. While groundwater contamination has been noted to the south and southeast of Building 742 and in conjunction with a storm water line in this area, groundwater contamination has not been found to extend below Building 742 or any area buildings.

2. **Comment:** The continuing investigation needs to evaluate all potential contaminant source areas for the storm drain line. The investigation needs to look for still more potential sources further up the line.

Response: Section 1.2.3.1 Storm Drain Cleaning and Figure 4 describe the 2001 work performed on the storm drains in investigation area C2. The work consisted of initial sampling of storm drain lines followed by cleaning, video logging, and resampling of the storm drain lines (International Technology Corporation [IT] 2002). Results of this work identified a persistent source of volatiles in the vicinity of Manhole D1-C85 as volatiles were detected in water and residue samples after the cleaning. Based on the findings of the previous investigations, the initial and expanded site investigations focused on the area south of Building 742.

The Final Investigation Area C2 Site Identification Technical Memorandum concluded that a number of remaining potential sources of contamination in investigation area (IA) C2 including the storm sewer system, do not need to be carried forward as sites of environmental concern. These sites have been assessed and do not represent a significant threat to human health or the environment. No further action is required to address soil or groundwater at these potential sources of contamination (CH2MHill 2002). DTSC concurred with the conclusion that no further action is warranted at these sites by providing approval of the Final IA C2 Site Identification Technical Memorandum in a letter dated May 20, 2003 (DTSC 2003). This information has been added to Section 1.2.1 Physical Setting and Site Description.

Section 5.2 Conclusions and Recommendations, recommends excavation within the footprint of the former degreasing plant including potential sources of contamination (such as the grease trap sump and sump line) and secondary sources (such as contaminated soil). Excavation within the footprint will also address tanks and pits shown in the historical plan of the cleaning and degreasing plant (Figure 6). Further inspection of the grinders foundation sump, the existing oil-water separator, and the industrial wastewater pipeline is also recommended.

Section 5.2 also recommends the installation of additional wells and groundwater samples to define the lateral extent of volatiles southeast of the storm water lines and to rule out an upgradient source of volatiles. The Navy assumes that EPA concurs with this section and has no additional recommendations.

3. **Comment:** Navy should collaborate with CH2M Hill to identify PCB sites in the area which could have leaked to the storm drain lines.

Response: In the expanded Site Inspection (SI), polychlorinated biphenyls (PCB) were not identified as a major contaminant at the site or a major contributor to site risk. As shown in Figure 11, PCBs in soil were limited to two discrete areas. One area is within the footprint of the former degreasing plant at sample location D1C85W01. The other area is near Manhole D1-C85 at sample locations D1C85GB001 and D1C85GB009. As discussed in Section 4.4 Risk Characterization, the primary contributor to risk in surface and subsurface soils is background levels of arsenic not PCBs. Although PCBs were detected in grab groundwater samples collected at the site, these results are not likely to be representative of in situ groundwater conditions. Grab groundwater samples were not filtered and PCBs which tend to bind to sediment were most likely analyzed as part of the total suspended solids in the groundwater samples.

According to the Draft Investigation Area C2 Remedial Action Plan, 125 of the 171 PCB sites in IA C2 do not require additional cleanup action, based on the results of the Navy and CH2M HILL characterization and remediation work completed to date (CH2MHill 2006a). The remaining 46 sites require either indoor air sampling, a feasibility study, further remedial action, or some combination of the aforementioned activities. There is one remaining PCB site requiring further action at the following list of buildings, unless otherwise stated: 50, S33-6, S34-2, 116 (three sites), 382, 388, 390, 592, 672, 676, 680 (26 sites), 686, 690, 742 (two sites), 746, 746A, 822, and 1310 (CH2MHill 2006a). Remedial actions will be completed in accordance with the "Final Interim Removal Action Work Plan for Outdoor Polychlorinated Biphenyl" or the "Draft Interim Removal Action Work Plan for Indoor Polychlorinated Biphenyl Sites in the Eastern Early Transfer Parcel" (CH2M HILL 2006b). Results of remedial action and requests for closure of these PCB sites will be provided in separate reports. This information has been added to Section 3.3.2 Results of Soil Sample Analysis.

RESPONSES TO WATER BOARD COMMENTS (Comments Provided by Brian Thompson)

1. **Comment:** Corrective action is required to stop surface water from commingling with subsurface pollutants through the broken storm water pipeline. The report indicates that water traveling through the pipeline is influencing shallow groundwater and causing flow reversals with tidal swings in Mare Island Strait. The potential for surface water to dissipate and cause further migration pollutants in the subsurface and for pollutants to be transported along the utility directly to Mare Island Strait needs to be mitigated.

Response: The Navy acknowledges the concerns raised in this comment and will include this information in the development of the removal alternatives in the removal action plan.

2. **Comment:** Screening levels and data evaluations need to consider threats to the environment (including ecological and aquatic habitats, surface water, and groundwater) in addition to human health.

Response: As described in Section 1.2.1 Physical Setting and Site Description, the former degreasing plant is located adjacent to Building 742 on the eastern side of Mare Island, approximately 300 feet west of Mare Island Strait. The area where the degreasing plant was located is paved and the location of the grinders foundation sump has been covered by a loading garage. As such there is no ecological habitat present at the site. Manholes D1-C85 and D1-C84 were plugged in 2002 to limit contaminant migration to the Mare Island Strait and the initial site inspection evaluated whether or not Building 742 – Former Degreasing Plant had impacted the Mare Island Strait and its ecological and aquatic habitats.

As described in Section 1.2.3.3 Initial Site Inspection, the 2002 initial SI included collecting sediment cores from outfalls 22, 23, 25, and 26 at depth intervals of 0, 8, 16, and 32 feet below the sediment surface. The outfall sampling locations were selected based on agreements with the regulators. Only outfall 26 and potentially outfall 25, through gradient reversal during storm and tidal events, may have received storm water from the area of the degreasing plant. The only compounds detected above the effects-range median (ER-M) (Long and Others 1995) in samples from outfalls 26 and 25 were nickel. Each sample contained nickel above the ER-M (51.6 milligrams per kilogram [mg/kg]). While nickel exceeded the ER-M, the concentrations were similar to the ambient concentrations for the San Francisco Bay Estuary (Water Board 1998). No further action was recommended at these outfalls and further evaluation of these ecological and aquatic habitats as part of the Building 742 – Former Degreasing Plant is not planned.

As described in Section 5.2 Conclusions and Recommendations, future evaluation of risk to ecological receptors will be focused on area groundwater.

3. **Comment:** **Characterization and evaluation of petroleum hydrocarbons shall consider both gross pollution by total petroleum hydrocarbons (TPH) and contamination by indicator chemicals, as discussed in *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (<http://www.waterboards.ca.gov/sanfranciscobay/esl.htm>).**

Response: Section 5.2 Conclusions and Recommendations, recommends addressing petroleum hydrocarbons commingled with chlorinated volatiles in soil and groundwater at the site. Petroleum hydrocarbons are believed to be the result of leaks from the fuel oil pipelines that ran parallel to the storm water system. Further investigation of petroleum hydrocarbons and chlorinated volatiles will take this comment into consideration.

4. **Comment:** **We concur that additional investigation is necessary to determine the nature and extent of pollutants. This includes the need to further investigate the sources of pollutant releases such as the tanks, pits, the Foundation Grinder Sump, and the oil-water separator identified on historic plan maps. Also, the extent of pollutants along subsurface utilities and separate phase hydrocarbons (petroleum product) need to be sufficiently characterized.**

Response: Section 5.2 Conclusions and Recommendations, recommends excavation within the footprint of the former degreasing plant including potential sources of contamination (such as the grease trap sump and sump line) and secondary sources (such as contaminated soil). Excavation within the footprint will also address tanks and pits shown in the historical plan of the cleaning and degreasing plant (Figure 6). Further inspection of the grinders foundation sump, the existing oil-water separator, and the industrial wastewater pipeline is also recommended.

As stated in the response to Water Board Comment No. 3, Section 5.2 Conclusions and Recommendations also recommends addressing petroleum hydrocarbons commingled with chlorinated volatiles in soil and groundwater at the site. Petroleum contamination is believed to be the result of leaks from the fuel oil pipelines that ran parallel to the storm water system. Previous investigations in the area have not noted separate phase hydrocarbons (free product) in the area.

The Navy assumes that Water Board concurs with Section 5.2 and has no additional recommendations.

5. **Comment:** Revise how soil gas samples are reported and discussed. Soil gas samples were collected at shallow depths due to the presence of shallow groundwater. Based on regulatory concerns over collecting representative soil gas samples near the surface (since breakthrough of ambient air and changes in barometric pressure and temperature may effect the quality of data obtained from the sample), we do not understand why drive casing was retracted 18 inches to collect shallow soil gas samples. Samples reported to be from a depth of 3.5 feet below the ground surface actually collected soil gas between depths of 2 and 3.5 feet. The quality of soil gas samples that were collected within 5 feet of the ground surface needs to be considered in evaluations of the data.

Response: The drive casing acts as a shield to protect the slotted screen on the soil gas sampler. The drive casing is retracted to expose the screen for soil gas sample collection. Only the drive casing is retracted not the screen; therefore, samples reported to be from a depth of 3.5 feet below ground surface are collected as reported. The soil gas samples were collected as planned in the "Draft Sampling and Analysis Plan for Soil Gas Investigations at the Former Degreasing Plant, Investigation Area C2, Mare Island, Vallejo, California" (Tetra Tech EM Inc. 2004). Section 3.1.1 provides a very detailed explanation of how the soil gas samples were collected.

In Section 3.3.1 Active Soil Gas Survey, a bullet has been added to the factors that may affect the correlation between VOC concentrations in soil gas and groundwater:

- Soil gas samples collected from shallow depths (within 5 feet of ground surface) can be affected by breakthrough of ambient air, changes in barometric pressure, and temperature.

A review of the soil gas results showed that despite the shallower depths, leakage of ambient air did not significantly impact the quality of the soil gas data that was collected. Four samples had no detectable levels of the tracer compound (isopropyl alcohol). Twenty-four samples had low levels of tracer compound from 0.4 to 13 micrograms per meter cubed ($\mu\text{g}/\text{m}^3$) and five samples had slightly higher levels of the tracer compound from 17 to 36 $\mu\text{g}/\text{m}^3$. The three samples with the highest concentrations contained tracer at 71 $\mu\text{g}/\text{m}^3$ (D1C85SG016), 100 $\mu\text{g}/\text{m}^3$ (D1C85SG026), and 260 $\mu\text{g}/\text{m}^3$ (D1C85SG001).

6. **Comment:** Label hydrographs (Figures 8 and 9) with a reference datum. Interpretation of the hydrographs requires knowing if the changes in water levels are relative to the ground surface or surveyed elevations.

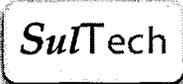
Response: The hydrographs (Figures 8 and 9) show the amount of water in feet above the transducer at a given time. For example, if the depth to water is at 10 feet below the top of casing and the pressure transducer is set at 15 feet below the top of casing, the water level measured by the transducer would be 5 feet above the transducer; therefore, the hydrograph would show a water level of 5 feet using this example.

Thus, the recorded water levels only represent groundwater level fluctuations within one piezometer. The magnitude and pattern, not the absolute value, of those fluctuations can be compared between piezometers. Since the piezometers were not surveyed, the hydrographs can not be presented in terms of surveyed elevations or ground surface.

A footnote will be added to Figures 8 and 9.

REFERENCES

- California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2003. "Approval of Final Site Identification Technical Memorandum for Investigation Area C2, Mare Island, Vallejo, California." May.
- CH2M Hill. 2002. "Final Investigation Area C2 Site Identification Technical Memorandum." October.
- CH2M Hill. 2005. "Final Interim Removal Action Work Plan for Outdoor Polychlorinated Biphenyl Sites." April.
- CH2M Hill. 2006a. "Draft Investigation Area C2 Remedial Action Plan, Lennar Mare Island, Vallejo, California." January.
- CH2M Hill. 2006b. "Draft Interim Removal Action Work Plan for Indoor Polychlorinated Biphenyl Sites in the Eastern Early Transfer Parcel." June.
- International Technology Corporation (IT). 2002. "Final Post-Construction Report. Storm Drain Cleaning Former Mare Island Naval Shipyard. Vallejo, California." February 20.
- Long, E.R., D.D. MacDonald, S. L. Smith, and F.D. Calder. 1995. "Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management*. Volume 19, Number 1. Pages 81-97.
- San Francisco Regional Water Quality Control Board (Water Board). 1998. "Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments." Staff Report. May.
- Tetra Tech EM Inc. (Tetra Tech). 2004. "Draft Sampling and Analysis Plan for Soil Gas Investigation at the Former Degreasing Plant, Investigation Area C2, Mare Island, Vallejo, California." February 20.



A Joint Venture of Sullivan Consulting Group and Tetra Tech EM Inc.

TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N68711-03-D-5104

Document Control No. DS . B139 . 21820

TO: Contracting Officer
Leanora Sili, Code 02RE.LS
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway, Bldg 127
San Diego, CA 92132-5190

DATE: 05/14/07
CTO: 0139
LOCATION: Mare Island Naval Shipyard, Vallejo, Californ

FROM: *Steven Bradley*
Steven Bradley, Contract Manager

DOCUMENT TITLE AND DATE:
RTCs on the Draft Expanded SI Report

TYPE: Contractual Deliverable Technical Deliverable (DS) Other (TC)

VERSION: N/A REVISION #: N/A
(e.g., Draft, Draft Final, Final)

ADMIN RECORD: Yes No CATEGORY: Confidential

SCHEDULED DELIVERY DATE: 05/22/07 ACTUAL DELIVERY DATE: 05/15/07

NUMBER OF COPIES SUBMITTED TO NAVY: O/10C/9E/9D
O = original transmittal form
C = copy of transmittal form
E = enclosure
D = CD

COPIES TO: (Include Name, Navy Mail Code, and Number of Copies)

NAVY:
Marie Dreyer
O/1E/1D
Marie Macam (BPMOW.MM)
1C + letter only
Nars Ancog (03EN.NA)
1C + letter only
Diane Silva (EVR.DS) *
2C/2E/2D
R. Palmer
3C/3E/3D

NAVY (Continued):
Michael Bloom (BPMOW.MB)
1C/1E/1D
David Godsey (BPMOW.DG)
1C/1E/1D
Greg Lorton (BPMOW.GL)
1C/1E/1D

SulTech:
File/Doc Control
1C/1E (w/QC)
D. Rhoades 1C/1E/1D
D. Kelly 1C/1E/1D

Date/Time Received