

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

REGION 2

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N00217.002875  
HUNTERS POINT  
SSIC NO.5090.3

September 2, 1993



Mr. Ray Ramos  
Western Division  
Naval Facilities Engineering Command  
900 Commodore Way, Building 101  
San Bruno, California 94066-0720

Dear Mr. Ramos:

**HUNTERS POINT ANNEX DRAFT PARCEL A SI REPORT**

The Department of Toxic Substances Control (Department) has reviewed the above report and believes that a major revision is required. Comments from Office of Science Advisor of the Department and Regional Water Quality Control Board are enclosed for your consideration. As the enclosed comments indicate the Department cannot accept the report in its present form. The Department will review the revised Parcel A SI report in its entirety including the results from the recent field activities part of addendum 3 of SI workplan.

The Department believes that goals, objectives, methodology, and historical data are the missing components in the Parcel A SI report. The goals and purpose of the above report must be distinct and meticulous and free of any ambiguity. The Navy should explicitly identify and discuss the procedures, limitations and subsequent decisions leading to the conclusions in the report. Further, the objectives and the methodology must be explained in detail to be comprehensive. Additionally, all the pertinent historical data on Parcel A need to be incorporated in the report to provide a complete perspective. The Navy needs to address why and for what purpose a risk assessment study was performed. Furthermore, the report must provide tables of contaminant levels before and after each removal. The volume of soil removals also needs to be identified.

The Interim Action Levels (IALs) seem to be different for each site at Parcel A. The Navy needs to explain why the statistical approach has been used in the upland portion of Parcel A where there are no fill material. The Navy and the agencies are working on the background levels. The Department does not agree with the IAL values provided in the SI report. Instead, the outcome of current undertaking by the parties to establish background values should be considered.



The groundwater grab sample at the UST site has identified low levels of VOCs. It is thus deduced that, at least, the groundwater at lowland portion of Parcel A is contaminated. The extent of contamination is not known at this time. The SI report does not provide any groundwater data. The Department disagrees with the conclusions expressed by the Navy. And believes that regardless of the source, the Navy needs to address the contamination along with mitigating strategy.

The air quality at Parcel A is another missing component of the overall investigation. The air sampling data from 1987 indicate low levels of air contaminants at parcel A. However, the sampling event in 1991 did not include the Parcel A. Data from 1987 have shown presence of VOCs and SOCs at four sampling locations. However, the report seems to underestimate the impact of air contaminants on lowland portion of Parcel A. There are no data on the upland portion of parcel A. The Department believes that there is an indication of contaminants migrating onto Parcel A. The Navy must address the impacts and mitigation at Parcel A. The report describes an air sampling event in the future for the entire base but it is not clear if Parcel A is included in that event.

Adding to the ambiguity, the Parcel A SI report discusses "no substantial potential health risk" throughout the report. It is implied that areas of Parcel A might pose a health risk but the risk is not substantial. The Navy needs to articulate what these words mean. A clear and unambiguous explanation is required.

The Department believes that a base-wide risk assessment must include Parcel A. Although, after excavation, Parcel A may not pose an unacceptable risk at this time, a cumulative risk assessment may prove otherwise.

The Navy needs to discuss the upland and lowland portions of Parcel A separately, if the approach and risk management decisions are to be addressed differently. This discussion should be incorporated early on in the text.

In summary the Navy needs to:

1. Describe in detail the purpose and objectives of the investigation.
2. Explain in detail the methodology employed at Parcel A.
3. Provide all the historical data leading to the current status.
4. Explain why the SI report contains a risk assessment.

5. Provide tables on soil contamination levels before and after each removal.
6. Provide a chronology of events.
7. Address the air quality at Parcel A and measures to mitigate.
8. Address the groundwater quality at Parcel A and how it will manage.
9. Explain why only few PA and an UST sites were investigated.

#### SPECIFIC COMMENTS

1. Page ES-1, paragraph 1, the SI is a precursor to the RI/FS. By itself is not a component. However, the information could be used in the RI/FS. Please explain the process of elimination when preliminary assessment was performed to include the sites for investigation.
2. Page 2, § 1.1, the purpose of the study and the content are not consistent. The Navy needs to explain in detail the purpose and the objectives of this report.
3. Page 9, § 2.2.3, there is no information on the lower aquifer. This section does not empirically show the groundwater quality at Parcel A lowlands. There is no deep boring showing the geological units. In addition, no accurate groundwater flow at parcel A has established yet. Please explain what measures are going to be taken to determine the groundwater flow at both aquifers.
4. Page 11, paragraph 3, it is misleading to use the PA-43 boring information for lowlands at Parcel A. Please provide a reference to the boring.
5. Page 8, please explain Why no air samples were collected at parcel A. What is meant by low levels?
6. Page 11, paragraph 3, What is "HLA-1992"?
7. Page 34, § 4.2.3.1, it is not clear if these values are after removal or before. It is important to provide these values in tables with before and after removal values.

Mr. Ray Ramos  
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8. Page 36, § 4.2.4.1, please explain why total oil and grease are natural at HPA. Where did you get this information?
9. Page 50, top paragraph, please explain if these values are after or before the excavation. What is "background"? Are you saying IAL? Please clarify.
10. Page 55, paragraph 1, there is a clear indication of groundwater contamination at lowland portion of Parcel A. The Department believes that the groundwater contamination must be addressed in the report. The Navy must explained why no investigation was ever considered. Further, what steps are going to be taken to assess the impact of groundwater on Parcel A? Table D-7 indicates arsenic mean of 4.86. How did you arrive at mean of 9 ppm?
11. All chemical values must be included in table 12.

Should you have any questions regarding this letter and would like to seek clarification, please call me at (510) 540-3821.

Sincerely,



Cyrus Shabahari  
Project Manager  
Base Closure Branch

Enclosure

cc: See next page

Mr. Ray Ramos  
September 2, 1993  
Page Five

cc: US EPA  
Region IX/Mail Code H-9-2  
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San Francisco, California 94105

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DTSC/OSA  
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DTSC  
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City and County of San Francisco  
Department of Public Health  
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San Francisco, California 94102

**M e m o r a n d u m**

To : Cyrus Shabahari, Project Manager  
Site Mitigation Branch, Region 2  
700 Heinz, Second Floor, Building F  
Berkeley, CA 94704

Date: August 30, 1993

From : Office of Scientific Affairs  
400 P Street, 4th Floor  
P.O. Box 806  
Sacramento, CA 95812-0806

Subject: Draft Parcel A Site Inspection Report, Hunters Point Annex

We have reviewed the document titled *Draft Parcel A Site Inspection Report*, dated July 30, 1993, and prepared by PRC Environmental Management, Inc. and Harding Lawson Associates, received in our offices August 2, 1993.

**Background**

The Department of Toxic Substances Control (DTSC) Human and Ecological Risk Section (HERS) has commented on human health and ecological risk assessments in detail over the past 2 years. The documents most recently reviewed were the Alternative Selection Reports for Interim Operable Units 2, 3 and 4 in February, March and April of 1993.

**General Comments**

The risk assessment portions of this document are unacceptable in the present form. The Department of Toxic Substances Control (DTSC), Human and Ecological Risk Section (HERS) has repeatedly notified the Navy, and contractors to the Navy, in written comment that HERS considers an incremental risk of  $10^{-6}$  as the *de minimus* level which may cause risk management options to be evaluated to reduce risk. The National Oil and Hazardous Waste contingency Plan (40 CFR 300.430), which is an ARAR for Superfund sites, states (Section 300.430(e)(2)(i)(A)(2)):

"For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound life-time cancer risk to an individual of between  $10^{-4}$  and  $10^{-6}$  using information on the relationship between dose and response. The  $10^{-6}$  risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure."



Additionally, Risk Assessment Guidance for Superfund Sites (RAGS) Part B clearly states that health-based Preliminary Remediation Goals (PRGs) should be derived for a risk level of  $10^{-6}$ , to be consistent with the NCP. The current draft of the risk assessment portion of the Parcel A site investigation utilizes an incremental cancer risk of  $10^{-4}$  in place of  $10^{-6}$ . Health-based Levels (HBLs), as defined and used in this document, must be calculated based on an incremental cancer risk of  $10^{-6}$ .

This review by the Department of Toxic Substances Control (DTSC), Human and Ecological Risk Section (HERS) concentrated upon the health risk and environmental risk portions of the submittal, as requested, and it is assumed that careful review of the analytical results by other DTSC technical staff support the recommendations contained in this letter. In particular, the comments by HERS are predicated upon the assumption that the nature and extent of soil contamination associated with Parcel A soils has been adequately characterized.

#### Specific Comments

HERS believes it reasonable that soil ingestion and dermal contact are the major exposure pathways for soil contamination at HPA Parcel A (Section 5.1, page 56).

The target risk levels (Section 5.1, page 57) for calculation of Health Based Levels (HBLs) must be  $10^{-6}$  for these HBLs to be acceptable to HERS.

The term *de minimus* is incorrectly applied to a risk level of  $2 \times 10^{-5}$  for site PA-19 in the phrase "The risk associated with adult exposure to arsenic at PA-19,  $2 \times 10^{-5}$ ... is seemingly background-related; this risk level is also considered the *de minimus* level at this site." (Section 5.2, page 58). The incremental risk level may be due entirely to arsenic, but whether that risk level will be addressed by remediation efforts is a risk management decision.

Burrowing mammals can be exposed to high vapor concentrations of volatile organic compounds in their burrows. Is the paving of site PA-51 so extensive (Section 5.6, page 62) to exclude burrowing mammals?

Characterize any contamination observed in the storm drains (PA-50, Section 6.2, page 64). Are metals a potential contaminant of concern at PA-50? If so, OVA would not detect their presence. The sediments immediately offshore of HPA contain elevated levels of metals and the storm drains and

industrial drains would seem the most likely transport conduit. If the storm drains were clear of sediment, state that condition. If the exposure pathway from storm drains sediment to Parcel A inhabitants was not considered complete, state that premise.

Remove the designation of a "de minimus" risk for site PA-19 (Section 6.6, page 67). The statement that the risk level is associated with local background is sufficient.

A discussion of positive sample results below the contract required quantitation limit (CRQL) describes reported concentrations "less than 50 times" the CRQL (Section 3.0, page F-8) in reference to a discussion in Appendix E. Appendix E (page E-9), however, lists positive sample results 20 times CRQL. Correct, or explain, these references so that they agree and are correct.

HERS believes that contaminants such as diesel and gasoline which are mixtures of known components should be evaluated based on the summed incremental cancer risk or summed hazard index of the constituent components. Risk or hazard from diesel or gasoline present in soil at Parcel A should not use slope factors or reference doses based on mixtures (Section 4.1, pages F-14 through F-20).

Consideration of pathways which appear the major routes of exposure is appropriate in this screening-level risk assessment (Section 4.2, page F-21). Exposure pathways such as inhalation of volatiles, inhalation of soil/dusts, ingestion of finfish or shellfish and ingestion of homegrown vegetables or fruits may be required in the base-wide risk assessment.

A statement that risk and hazard are summed over the HBLs which appear the most health-protective should be added to make it clear that consideration is given to additive exposure to more than one chemical (Section 4.2, page F-21).

The risk management discussion of differing levels of incremental risk (Section 4.2, page F-22 and F-23) beginning with the first full paragraph on page F-22 through the end of the second full paragraph on page F-23 should be removed and placed in a section discussing uncertainty in risk assessment calculations.

Ingestion of home-grown vegetables is not considered in the risk calculations. Reference to a relative absorption factor (RAF) for "diet" is not necessary (Section 4.2, page F-24). The RAF in this case is meant to address the absorption

from soil which is rarely the medium of exposure. Additionally, very few of the oral relative absorption factors (RAFo) differ from 1.0. It would seem more informative to detail the specific instances where RAFo differing from 1.0 are appropriate for use.

HERS recognizes that a correct model for cross route extrapolation of slope factors and reference doses is presented (Section 4.2, page F-24). The attempt at cross route extrapolation does not gain any increased accuracy over default dermal absorptions where the oral absorption is "assumed" rather than experimentally determined. The soil dermal slope factor for aldrin, dieldrin, heptachlor and heptachlor epoxide rely on "assumed" oral absorption factors (Table F-7). The soil dermal RfD for aldrin, 2,4-DB, dieldrin, endosulfans, endrin, heptachlor, heptachlor epoxide, MCPA, MCPP, methoxychlor, 2,4,5-T and 2,4,5-TP rely on "assumed" oral absorption factors (Table F-8).

Removal of contaminants in the storm drains (PA-50) which may not be required based on the risk and hazard estimates for Parcel A (Section 6.0, page F-32) may be required after assessment of the potential threat to the ecological receptors of San Francisco Bay.

Risk or hazard calculations are not performed for contaminants which appear to have sufficient data. The noncancer hazard to adults due to cadmium at PA-19 is calculated while the noncancer hazard to children due to cadmium is not calculated (Table F-12, Table F-15). The same situation regarding cadmium calculations is true for site PA-41 (Table F-18).

Even using the  $10^{-4}$  risk level for calculation of HBLs, which HERS does not agree is appropriate, I was unable to validate the HBL calculations (Table F-10) within a single spreadsheet with any degree of predictability. Site PA-19 was chosen to validate the HBL and risk and hazard calculations for the residential scenario (Table F-12). I was able to replicate the calculation of all the carcinogen-based HBLs for adults and children using the slope factors and relative absorption factors (Table F-7) and exposure concentration listed in Table F-12. The attempt to replicate the HBLs calculation based on systemic toxicity for the residential scenario was more puzzling. Using both the "long" and "shortened" formulae provided (Table F-10), I arrived at values for many of the HBLs based on systemic toxicity (i.e. noncancer HBLs) for children exactly an order of magnitude lower than those listed (Table F-12). However, the same cell formula which replicated the systemic toxicity HBL for

children for bis(2-ethylhexyl)phthalate of  $1.23E+03$  mg/kg failed to replicate the systemic toxicity HBL for children for butylbenzylphthalate, only one cell lower. I arrived at  $6.63E+03$  mg/kg for butylbenzylphthalate, while Table F-12 lists  $6.6E+04$  mg/kg. The same cell formula again accurately replicated the systemic toxicity HBL for children for chrysene of  $9.32E+02$  mg/kg, while returning a systemic toxicity HBL of  $8.41E+02$  mg/kg for fluoranthene instead of the  $8.4E+03$  mg/kg listed in Table F-12. Metals which contributed a significant amount of the noncancer hazard to children exhibited the same puzzling pattern. The same cell formula used to validate the systemic toxicity HBLs for organic compounds for children successfully replicated many of the systemic toxicity HBLs for metals. Some exceptions were barium where I obtained a systemic toxicity HBL for children of  $5.33E+02$  mg/kg as compared with  $4.3E+03$  mg/kg (Table F-12), zinc where I obtained a systemic toxicity HBL for children of  $1.52E+04$  mg/kg compared with  $2.3E+04$  mg/kg (Table F-12), copper where I obtained a systemic toxicity HBL for children of  $2.82E+03$  mg/kg compared with  $3.7E+03$  mg/kg (Table F-12) and chromium where I obtained  $4.66E+04$  mg/kg compared with  $6.1E+04$  mg/kg (Table F-12). The cell formula for adult systemic toxicity HBLs more successfully replicated the value listed with the sole exception of zinc where I obtained a value of  $1.36E+05$  mg/kg compared with  $2.3E+04$  mg/kg (Table F-12).

The Standards and Criteria Work Group of the California EPA (Cal/EPA) has developed a list of cancer slope factors in an attempt to standardize risk assessments performed by the various risk assessment groups within Cal/EPA. HERS recommends the use of the Cal/EPA toxicity criteria in lieu of the US EPA criteria in cases where Cal EPA criteria are available or calculations based on both slope factors may be presented. HERS feels the Cal/EPA Standards and Criteria Work Group cancer potency factors meet the criteria for designation as potential chemical-specific "applicable or relevant and appropriate" (ARAR) criteria, as defined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This interpretation is based in part on U.S. EPA policies described in the guidance document entitled "CERCLA Compliance with Other Laws Manual" (EPA 540/G-89/006). The most current set of cancer potency factors is published in a memorandum dated June, 1992.

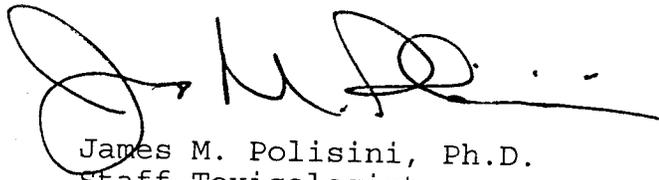
### Conclusions

The total Health-based Levels (HBLs) should be recalculated based on a  $10^{-6}$  incremental cancer risk. What appear to be inconsistencies in the hazard calculations should be corrected or clarified. A simple site-by-site tabular

presentation should be made of:

1. The total risk and/or hazard prior to any interim remedial removal efforts;
2. The total risk and/or hazard after any completed interim remedial removal efforts; and,
3. The risk and/or hazard due to "background" soil concentrations, that is, those uninfluenced by Navy activities at Hunters Point.

These comments are meant to be constructive and we hope they are useful. If we can be of further assistance, please contact us at (916) 255-2043 (Dr. Polisini) or the general Office of Scientific Affairs telephone number of (916) 255-2007.



James M. Polisini, Ph.D.  
Staff Toxicologist  
Human and Ecological Risk

Section



Reviewed by: G. Michael Schum, Ph.D.  
Staff Toxicologist  
Human and Ecological Risk Section

cc: Michael J. Wade, Senior Toxicologist, HERS

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

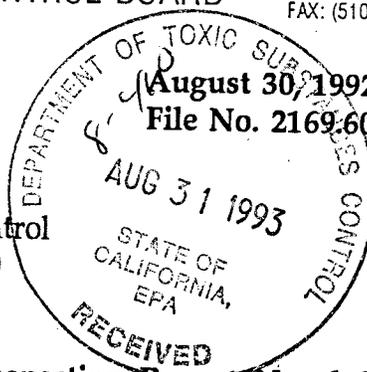
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Mr. Cyrus Shabahari  
Department of Toxic Substances Control  
700 Heinz Avenue, Blvd. F, Suite 200  
Berkeley, CA 94710

**Subject: Draft Parcel A Site Inspection Report Naval Station Treasure Island, Hunters Point Annex, San Francisco, California, July 30, 1993**

Dear Mr. Shabahari:

The staff of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) have reviewed the above document received in our office on July 30, 1993. The following comments should be considered. Additional comments will be forthcoming when the remainder of the data is made available.

1. This version of the document does not include the results of the additional field work requested by the SFRWQCB to resolve the questions of the existence of a drinking water aquifer on the upland portion of Parcel A, its relationship to a nearby but off-site aquifer, and the extent of pesticide contamination in soils. The data are necessary to resolve these questions before final approval of the Site Inspection (SI) report for Parcel A may be obtained.
2. The document does not address the concerns of the SFRWQCB about the potential groundwater pathway on the lowland portion of Parcel A. The Navy has proposed to address this issue from a risk management perspective by proposing land use restrictions (no residential use) on the lowland portions of Parcel A. Because no soil borings were taken nor monitoring wells constructed in the lowland portion of Parcel A, little is known about the groundwater hydrology, and there is little information to evaluate whether the fill under this portion of the site is more or less contaminated than the surrounding Parcels. In addition, there is insufficient information to determine if contaminated groundwater could be moving from other Parcels onto Parcel A. While the SFRWQCB does not want to impede reuse of this portion of Parcel A, it is important to address these water quality concerns.
3. The document does not adequately address radiologic concerns. Radiologic data and other appropriate documentation for buildings in Parcel A should be included so that the public has all of the necessary information under one cover. If necessary, text from other documents should be included so that the entire "picture" of Parcel A is presented. Specific comments on radiologic issues from the Department of Health Services will be sent under separate cover.

4. The report of sewage "observed flowing in the storm drain north of PA50SW124" (p.24), because it originated from a building in Parcel A, must be addressed within the context of Parcel A, not relegated to Parcel B at some time in the future.
5. Information gathered by an investigation field team, e.g., a report of raw sewage discharge, or observations of leaks or spills of chemicals or petroleum, should evoke an immediate report to the Base Commander so that proper emergency response action can be taken to correct the reported incident.
6. The cleanup goal of 100ppm TPHd was not "recommended" by the SFRWQCB (p. 55). The cleanup goal for TPHd is zero (or non-detect) in soils and sediment (10 ppm), unless the discharger can demonstrate that higher levels of contaminant will not pose a threat to water quality. Using Marshak's "Designated Level Methodology", (a TBC) the following approach was used to develop a proposed screening level for protection of water quality goals for the contaminant TPHd on the lowlands of Parcel A. The following assumptions were made: a. an environmental attenuation factor of 10 for silt and clay soils with less than 10 feet to groundwater, b. a leachability factor of 10 for organic constituents, c. an assumed average LC50 toxicity to aquatic organisms in water of 1.85 ppm (from Final Vegetation Management in the Coastal Plain/Piedmont, Appendices, Volume II, U.S.D.A., Forest Service, Management Bulletin R8-MB-23, January 1989, Table 6-15; toxicity to diesel was assumed to be similar to toxicity to jet fuel), d. a 10-fold protection factor to address the relationship between acute effects (LC<sub>50</sub>) and the no-effects level (NOEL) (this factor may actually underestimate the relationship). Using the above assumptions, the maximum concentration of TPHd that would not exceed the Total Designated Level for TPHd for protection of the water quality goal (no acute toxicity) would be approximately  $(1.85 \text{ ppm} \times 0.1 \times 10 \times 10 =)$  18.5 ppm (wet weight). An alternative to this approach is to perform leachate tests on the soil and measure the amount of contaminant released into the leachate and its toxicity to ecologically relevant organisms.

Please direct your questions to me at (510) 286-4222.

Sincerely,



Barbara M. Smith, Ph.D.  
Remedial Project Manager