

Mr. Richard Mach  
Department of the Navy  
Southwest Division  
Naval Facilities Engineering Command  
1220 Pacific Highway  
San Diego, California 94123-5190

July 26, 2000

Attention: Mr. Richard Mach

***QUALITATIVE REVIEW, DRAFT FINAL  
PARCEL D - RISK MANAGEMENT REVIEW PROCESS  
HUNTERS POINT SHIPYARD  
SAN FRANCISCO, CALIFORNIA  
EMC JOB NUMBER 199624***

Dear Mr. Mach:

On behalf of the Southeast Alliance for Environmental Justice (SAEJ) and the residents and community of Hunters Point, Envirometrix Corporation (EMC) is pleased to provide our qualitative review and comments to the Department of the Navy, Naval Facilities Engineering Command (Navy) related to EMC's review of the Parcel D, Risk Management Review Process document dated June 20, 2000 for Hunters Point Shipyard (HPS), San Francisco, California.

GENERAL COMMENTS

- ▲ EMC disagrees with the recommendation of no further CERCLA action for many of the sites in Parcel D. The presence of chemicals in groundwater is clear evidence that leaching of both hydrophilic and hydrophobic chemicals has occurred over the years. In addition, it has been demonstrated in the past that groundwater at Hunters Point is in direct hydrologic connection with surface water in the San Francisco Bay. Decisions and remedial strategies for Parcel D remedial actions should not be made without consideration of chemical migration to groundwater, ingestion of groundwater as a drinking water source, potential exposures to aquatic species due to groundwater-to-surface water interactions, SFRWQCB non-degradation policies, and the Basin Plan. A significant consideration to site development is the potential volatilization of chemicals into buildings and indoor air exposures. This analysis should be conducted as part of the risk assessment, so that results can be considered in Parcel D risk management decisions.



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- ▲ The Navy previously stated in a response to comments for the draft RMRP dated June 21, 1999 that, *HPS groundwater was determined not to be a beneficial use; therefore, only the soil to groundwater to the bay pathway was evaluated. It was determined that Parcel D groundwater (and therefore any potential soil sources) did not pose a threat to ecological receptors in the bay. At the request of the agencies, the Navy is reevaluating the beneficial use of HPS groundwater.* Have the Agencies agreed with the Navy statement that HPS groundwater is of no beneficial use ?
- ▲ Page 2. EMC agrees with the DTSC that 10 mg/kg total PCBs is *not* an appropriate screening value or remediation goal for Parcel D or any other parcel at HPS. The 1999 EPA PRG goal for total PCBs is 1.0 mg/kg for workers and 0.22 mg/kg for residents. These screening levels should be applied at all Parcel D sites, *and at a minimum* (depending on results of other analyses such as groundwater migration and protection of ecological biota), concentrations above these concentrations should be remediated.
- ▲ Use of a single-chemical approach is inadequate to protect human health and the environment at Parcel D, in accordance with CERCLA. Numerous chemicals have been detected at the IR and DM sites, and future site, office, and construction workers (and/or residents) will be exposed to a range of chemicals simultaneously, not just a single chemical. Using the approach outlined in the Parcel D RMR Process, the residual risk proposed for Parcel D sites (considering risks from ambient concentrations, multiple chemicals, exposure routes, and sites) could very well exceed the EPA risk range of  $10^{-4}$  to  $10^{-6}$ , and/or an HI of 1.0. Why have additive effects from multiple exposures not been considered in the analysis ?
- ▲ Health risks from *ambient concentrations* should be considered to be additive in the analysis of overall worker risks (e.g., arsenic, manganese, other chemicals). If risks from ambient conditions exceed  $10^{-6}$  or a HI of 1.0, site-related COPCs should be remediated extensively, so that *total risks* do not exceed these values for workers and/or residents. The Navy should provide an analysis demonstrating that the *total risk* (risk from ambient conditions plus current/future site-related risk) for Parcel D will not exceed  $10^{-6}$  for the populations of concern. The analysis should also clearly demonstrate that residual levels will not adversely impact potential drinking water sources and aquatic receptors in the San Francisco Bay.
- ▲ 1999 Preliminary Remediation Goals (PRGs) should be used in the evaluation of Parcel D sites, especially since some are far more stringent than the screening values used (e.g., industrial PRGs for PCBs have been reduced from 10 mg/kg to 1.0 mg/kg). The final Parcel D RMR should use these updated values.



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Additionally, risk calculations should always consider the most recent guidance documents available (e.g., RAGS, Volume I, Supplemental Guidance, Dermal Risk Assessment; USEPA, 1999a).

- ▲ Page 2. There is no technical basis for the Arsenic HPAL “rule of thumb” approach used in the document, and EMC completely disagrees with the use of this approach. For example, the “rule of thumb” level of 22.2 mg/kg for Arsenic is approximately 56 times higher than the residential PRG and 8 times higher than the industrial PRG. Also, it is two times the ambient level, and 22 times higher than the Soil Screening Level for protection of groundwater (SSL; DAF of 1 considering the shallow depth to groundwater). HPAL screening values do not consider potential risk to human health, ecological receptors, leaching of soil contaminants to groundwater, and other pertinent issues. These values also do not consider the cumulative risk from exposure to multiple chemicals and multiple sites. The “rule of thumb” approach is completely inappropriate, and should not be included in the final document.
- ▲ All concentrations above the 95<sup>th</sup> percentile of unimpacted soil (HPAL) should be considered aberrant, and should be remediated if they exceed human health PRGs, and/or concentrations protective of groundwater and aquatic receptors in the San Francisco Bay. The final document should be changed as recommended.
- ▲ Page 2. Citing the *noncancer* Arsenic PRG to justify the ambient levels “two times rule of thumb” is misleading to the general public. Arsenic is a very potent carcinogen, and the lowest PRG should always be used to screen sites or develop remedial goals protective of future populations (i.e., the carcinogenic PRG). The appropriate PRG to use in this case is 2.7 mg/kg, almost 10 times less than the value cited. The document should be changed to reflect this information.
- ▲ Method detection limits (MDLs) for PCBs and PNAs appear to be elevated. The Navy should clearly demonstrate that MDLs for all chemicals proposed to be left in place are well below the (total) equivalent of  $10^{-6}$  and/or an HI of 1.0.
- ▲ Petroleum products (e.g., TPH, TOG) should be included in the analysis of total risk, considering human health, groundwater, and ecological issues.
- ▲ Page 3. The statement that “*As the table indicates, the RMR process resulted in the Navy concluding that in many cases the RI had overestimated the risks posed for a number of the IR sites*” should be deleted. Several of the 1999 PRGs (Aroclor-1260; total PCBs; others) are more stringent than the 1995 and 1998 toxicity values used in the analysis. On this basis, the Navy appears to have *underestimated* the risks on a number of sites, especially those with Arsenic, PCBs, and PAHs. The



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analysis should be changed to include 1999 PRGs and other recent guidance documents, and should include an analysis of risk from ambient concentrations and the multiple pathways listed above.

- ▲ It is inappropriate to assume that PNAs in shallow surface soil are associated with asphalt. Detected concentrations may also represent spills and other activities consistent with base history. The physical and chemical characteristics of PNAs generally dictate that they will be found in surface soils (depending on the activity at the site), and they are commonly detected in surface soils at waste sites. A number of PNAs are considered to be potent carcinogens, and when present in surface soil, are readily available for direct human contact from inhalation, skin contact, or incidental ingestion. For these reasons, shallow detections are especially important to consider in a risk assessment and/or risk management plan. All detected chemicals, including PNAs in surface soils should be evaluated as residual contamination from the Navy, and should be properly evaluated and remediated considering potential risks to human health and the environment.
  
- ▲ What is the next scheduled step in the sequence for this Parcel ? What are the planned activities for the next 12 months and when will remediation begin ?

#### SPECIFIC COMMENTS

##### **1. Page 1, Second Paragraph**

*“The BCT had lengthy discussions but could not agree on the depth of the soils to be remediated and the target risk level for Parcel D selected remedy. In addition, new cost information developed by the Navy suggested that the cost of cleanup could be far greater than the estimates published for Parcel D”.*

What is the Navy’s original and revised cost for cleanup for Parcel D? How were the factors related to the revised cleanup costs used by the Navy to determine the depth of soils to be remediated, and the target risk levels ?

##### **2. Page 1, Third Paragraph**

*“Potential threats to ecological receptors were not considered because no terrestrial habitat is currently present on Parcel D and it is assumed that none will be present in the future.”*

How did the Navy determine that no terrestrial habitat is currently present on Parcel D?  
What method does the Navy propose to use to exclude future terrestrial habitat from



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occupying Parcel D ? Does the Navy consider Groundwater and/or the Bay an ecological receptor?

### 3. Page 3, First Paragraph

*“a PCB concentration of 10 mg/kg equates to an estimated lifetime cancer risk of  $1 \times 10^{-5}$ , under industrial scenario. Although the Navy and EPA agreed it was appropriate to consider this guidance during the Parcel D RMR process, DTSC disagreed with this approach and preferred to use the 1998 industrial PRG of 1.3 mg/kg, which equates to an excess lifetime cancer risk of  $1 \times 10^{-6}$ ”.*

EMC does not agree with the Navy and the EPA that it is appropriate to consider a PCB cleanup level which equates to a cancer risk of  $1 \times 10^{-5}$ . EMC agrees with the DTSC that the cleanup goal should be  $1 \times 10^{-6}$ . However, cleanup goals should be based on current PRG goals. What evaluations were conducted by the Navy and EPA to allow for this deviation from the cleanup goal of  $1 \times 10^{-6}$ , for industrial reuse scenario? Are there any other areas where the Navy is deviating from this goal as stated on Page 1 in paragraph 3 ?

### 4. IR-08, RA 8-1

Please clarify the proposed response action for this area.

An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be considered.

Arsenic at 13 mg/kg is in excess of the HPAL of 11.1 mg/kg, and therefore should be considered aberrant. An Arsenic concentration of 13 mg/kg is approximately 5 times the 1999 USEPA industrial PRG, and 13 times the SSL (DAF 1). This highly potent carcinogen should be remediated throughout the site when detected above PRG concentrations and/or levels necessary to protect groundwater.

Aroclor-1260, present at 2.7 mg/kg, is greater than the 1999 industrial PRG of 1 mg/kg. This chemical should be remediated to health- and groundwater-protective levels throughout the site.

Because there is not adequate data to characterize the area of the PCB removal action, will additional sampling be conducted to verify the nature and extent of contamination ?

The source of BaP in groundwater has not been identified. Will more sampling be conducted, especially considering the shallow depth to groundwater, and the SSL of 0.4 mg/kg for this chemical (USEPA, 1999b) ?



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The presence of Arsenic, Aroclor-1260, and BaP in groundwater clearly demonstrates that leaching has occurred at the site. Will an analysis of necessary soil remediation to be protective of groundwater as a drinking water source in the future should be conducted? Because of the shallow depth to groundwater and the need to achieve drinking water standards, has the Navy determined that soil remedial goals may well be significantly less than PRGs?

Total oil and grease should be remediated at the site.

It is unclear how the table on Page 8-4 could indicate that there are no problems with cumulative risks and/or ambient risks. It appears that the analyses necessary to make this determination have not been performed, and a number of important exposure possibilities have not been considered (e.g., drinking water, ecological receptors, construction workers).

#### **5. IR-08, RA 8-2**

Because there is not adequate data to characterize the area of the PCB removal action, additional sampling should be conducted to verify the nature and extent of residual contamination.

The use of institutional controls is inappropriate because of the depth of chemical contamination and the shallow groundwater at the site. Aroclor and Arsenic have clearly leached from the site, as demonstrated by the elevated concentrations in groundwater. Aroclor was detected in groundwater at 129 times the drinking water PRG, and Arsenic at 9 times the drinking water PRG. Both of these chemicals should be remediated in site soils and groundwater.

An evaluation of chemical leaching to groundwater should be conducted. In addition, worker risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

Total oil and grease should be remediated at the site.

#### **6. IR-08, DM 9184**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated. Also, it is unclear which metals exceeded the RI screening criteria, and whether they were considered in the Parcel D RMR process.

Total oil and grease should be remediated at the site.



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**7. IR-08, DM 9482**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

TRPH and TPH<sub>mo</sub> should be remediated at the site, and the table should be changed to reflect these exceedences.

**8. IR-08, DM 9582**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

TPH<sub>mo</sub> should be remediated at the site, and the table should be changed to reflect this exceedence.

**9. IR-08, DM 9684**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

In addition, BaP at 1.25' below ground surface (bgs) should be remediated. The source of metals in groundwater needs to be further delineated prior to finalizing decisions on this site.

**10. IR-08, DM 9686**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

In addition, BaP exceeds the 1995, 1998 and 1999 PRGs, and Aroclor-1260 exceeds the 1999 PRG by almost 3.5 times. These chemicals should be remediated. Also, it appears that there has been no analysis of the additive or cumulative risks, and no consideration of the risk associated with ambient conditions at the site (although the table reflects that there is no problem with these risks). Action is necessary at this site.



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**11. IR-08, DM-9791**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. Risks from ingestion of contaminated drinking water, and potential impacts from groundwater-to-surface water interactions should be evaluated.

Additional evaluation should be conducted in light of excessive site risks from chloroform and metals.

Total oil and grease should be remediated.

**12. IR-09, RA 9-1**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, Arsenic concentrations are 5 times the industrial PRG, and should be remediated.

**13. IR-09, RA 9-2**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, Arsenic concentrations are 5 times the industrial PRG, and BaP levels are above the 1999 PRG. These chemicals should be remediated.

**14. IR-22**

EMC disagrees that there should be no CERCLA action on this site. Chemicals at depths greater than 10' bgs should be evaluated for potential migration to groundwater and the San Francisco Bay.

**15. IR-33N, RA 33N-1**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted at all areas in IR-33N, as well as an evaluation of potential risks to workers ingesting groundwater as a drinking water source, and potential impacts to Bay receptors from groundwater-to-surface water interactions. In addition, BaP is present on site at twice the 1999 PRG of 0.29, and should be remediated. Chromium and benzene in groundwater should be remediated.

TPH/TRPH should be remediated.



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**16. IR-33N, DM 7560**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted, and chromium levels of 1500 mg/kg far exceed the 1999 industrial PRG of 450 mg/kg. It is inappropriate to leave these concentrations in place, especially considering that the HPAL for chromium is 147, or approximately 10 times less than the proposed “no action” level. Chromium should be remediated at the site.

**17. IR-33N, DM 7657**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of leaching to groundwater should be conducted. In addition, it is completely inappropriate to state that Arsenic levels of 24 mg/kg are “consistent with” the 95<sup>th</sup> percentile value of 11.1 mg/kg (Table 1). A concentration of 24 mg/kg is over twice the ambient concentration, and almost 10 times the industrial PRG. Arsenic must be remediated at this site.

**18 IR-33S, DM 8169**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted, and chromium levels of 1352 mg/kg far exceed the 1999 industrial PRG of 450 mg/kg. It is inappropriate to leave these concentrations in place, especially considering that the HPAL for chromium is 147, or approximately 9 times less than the proposed “no action” level. Chromium should be remediated at the site.

**19. IR-35, RA 35-1**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted, and BaP concentrations are approximately 3 times the 1999 PRG. In addition, PNAs are commonly found in surface soil, and should not be considered to be an “artifact of the overlying asphalt.”

**20. IR-37, RA 37-2**

Residual concentrations of antimony and BaP should not be greater than 1999 PRGs and/or levels necessary to protect groundwater as a drinking water source.

**21. IR-53, RA 53-2 and 53-3**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, dibenz(a,h)anthracene



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is present above the PRG, Arsenic is present at 4 times the 1999 industrial PRG, and BaP is present at approximately 3 times the PRG. Remedial action is required for this site.

## **22. IR-55, RA 55-1**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. Action is necessary to remediate lead in boring IR55B016. In addition, BaP was detected at almost twice the 1999 industrial PRG, and Arsenic at approximately 10 times the PRG and over twice ambient concentrations. Remediation of these chemicals is necessary, and should extend to at least 10' bgs.

## **23. IR-55, DM 10383**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, Arsenic levels are approximately 9 times the industrial PRG and twice the ambient levels. The BaP concentration of 0.57 mg/kg is approximately twice the 1999 PRG, and greater than both the 1995 and 1998 PRGs. Leaving these chemicals in place is inappropriate, and this site requires remediation to protect human health and the environment.

## **24. IR-68, RA 68-1**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, Arsenic levels are approximately 5 times the industrial PRG and also exceed ambient levels.

## **25. IR-69 and IR-70**

EMC disagrees that there should be no CERCLA action on this site. An evaluation of chemical leaching to groundwater should be conducted. In addition, Arsenic levels are approximately 5 times the industrial PRG and also exceed ambient levels.

## LITERATURE CITED

USEPA, 1999a. *Risk Assessment Guidance for Superfund (RAGS), Volume 1: Human Health Evaluation Manual, Supplemental Guidance, Dermal Risk Assessment, Interim Guidance*. EPA/540/R-99/005. Office of Solid Waste and Emergency Response, Washington, D.C.

USEPA, 1999b. *Region 9 Preliminary Remediation Goals (PRGs), Revised*. Memorandum from Stanford J. Smucker, Ph.D., October 1, 1999, San Francisco, CA.

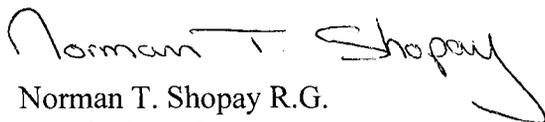


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Thank you for the opportunity to review this document. The EMC team looks forward to your response.

Yours very truly,  
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