California Regional Water Quality Control Board
San Francisco Bay Region

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Ms. Michelle Sondrup
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Southwest Division Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Subject: Draft Site 1 Engineering Evaluation/Cost Analysis (EE/CA) Naval Fuel Depot Point Molate Richmond, California

Dear Ms. Sondrup:

Thank you for submitting the October 29, 1999, Draft Site 1 Engineering Evaluation/Cost Analysis Naval Fuel Depot Point Molate. Following are general and specific comments on the document.

General Comments

This Draft EE/CA appears to be a hybrid of the Federal CERCLA process, EPA Presumptive Remedy process, and California's Corrective Action Process under Title 27. The Navy's reason for hybridizing these cleanup/remediation processes is to expedite the cleanup process at Point Molate. The problems generated by combining these processes are:

- Confusing terminology regarding action, such as removal, containment, and corrective action
- Risk assessment not completed to determine if the chemicals of concern pose a threat to human health and the environment.

Regional Board staffs' understanding of the development of the Draft EE/CA is based on historical BCT discussions that focused on a "removal" action for the landfill. The assumption historically was the waste material would be excavated and a risk assessment could be postponed until after the removal action (similar to IR site 2, the Sand Blast Grit Area).

On May 4, 1999 the Navy met with Contra Costa County Health Services (CCHS) and the California Integrated Waste Management Board (CIWMB) to discuss options for closing/cleaning up the site. Both the CIWMB and CCHS agreed a soil cover would be appropriate to protect human health and safety. Representatives from both agencies stated the Regional Board oversees water quality issues relating to impacts from landfills.

Regional Board Order 97-125, task 3a, required a Corrective Action Workplan for the Landfill, with a due date of March 1, 1999. The Draft EE/CA fulfills the task 3a requirements. Cleanup levels for chemicals of concern were not proposed, and a risk assessment has not been completed, therefore it is difficult to determine if the action will meet water quality objectives and be protective of human health and the environment.

For chemicals of concern that do not have numerical values as listed in the San Francisco Bay Regional Water Quality Control Board Basin plan, site specific numbers can be developed. The Draft Fuel Product Action Level Development Report as required in Regional Board Order 97-125, task 5a, should have proposed site-specific Total Petroleum Hydrocarbon (TPH) cleanup numbers for groundwater and surface water, which could be applied as numerical cleanup levels at IR1, once accepted by the Regional Board. Site specific cleanup levels for TPH for surface water and groundwater have not been developed. Therefore a secondary Maximum Contaminant Level (MCL) for TPH as diesel of 100 ppb (Regional Water Quality Control Board Central Valley Region, a Compilation of Water Quality Goals, March 1998, Marshak, J.) will be applied as a cleanup level for TPH. Therefore, groundwater remediation must be considered and a discussion of groundwater remediation must be included in the discussion of each alternative.

The site does not have an appropriately placed and screened groundwater monitoring well to characterize the leachate from the landfill. In July through November 1999 Regional Board staff, the Navy, and the Navy's contractors discussed a well installation in the colluvium at the toe of the landfill to provide data regarding contaminant concentrations leaching from the landfill. To measure contaminant concentrations leaching from the landfill groundwater sampling and monitoring should occur immediately downgradient of the current toe of the landfill. Whether the contaminants are from valve box 7, that have entered the landfill material or the landfill oily sludge is irrelevant, because once a waste enters the landfill it is considered a part of the landfill. Therefore the Final EE/CA will need to recommend a well installed at the toe of the landfill for monitoring purposes. Additionally the Final EE/CA should outline what measures will be taken to clearly identify the current toe of the landfill to accurately place a well after the selected remedial alternative is in place.

Analytical results of groundwater collected from well MW02-15 and the surface water at the toe of the landfill should be included on a map in the Final EE/CA report. Isoconcentrations contours of soil and water contamination should be completed to easily depict the areas of contamination at the landfill and downgradient of the landfill.

Public participation in the selection of the final remedy for this landfill is essential. The remedy selection for the landfill has been discussed as interim, but in reality the remedial action will be a final remedial action. Therefore a public meeting should be conducted before the final version of the EE/CA is completed.

A water balance equation for explaining the recharge, discharge and storage capacity of the aquifer should be evaluated to verify a soil cover is the appropriate remedy for the landfill. For example if 95% of the water is entering the landfill from the surface and 5% of the water in the landfill is groundwater entering from the subsurface at the head of the landfill then an

impermeable cap may be a more appropriate remedy then the soil cover. Considering the amount of data previously collected for groundwater elevation and groundwater flow velocities at IR1 the information is available to compute a water balance for the landfill and ravine and relate the results to the most appropriate remedy selection.

Specific Comments

1. Section 1.0, Introduction, The second paragraph states the Draft EE/CA was distributed to the USEPA and the cover letter does not indicate the USEPA received a copy. The USEPA requested copies of all correspondence and reports even though the Department of Defense did not include funding for the USEPA regulatory review. The USEPA would like to have the opportunity to review documents and correspondence for Point Molate, and the USEPA will review the Draft EE/CA for the landfill. Comments on the Draft EE/CA will be provided through Regional Board staff or directly from the USEPA.

The last sentence of the second paragraph indicates after a revised draft, a public notice will appear in the Richmond Post that this document is available for review. The landfill remedy is most likely to have the greatest amount of public interest, considering the long-term implications of the selected remedy. Therefore, Regional Board staff is recommending a public meeting be held, and advertised in local newspapers, and/or other forums, that are appropriate to inform the greatest amount of citizens about the meeting, to discuss the selected remedial alternative and seek public input, before finalizing the document. Regional Board staff is considering the Final EE/CA similar to a Proposed Plan developed after a Feasibility Study, and should include the same level of public participation.

When did the planning period begin for the Draft EE/CA, when the Navy awarded the contract to prepare the document or when the 1994 Phase I Investigation recommended a Draft EE/CA be completed for the landfill?

The Navy should request the Local Agency to verify that the EE/CA will satisfy CEQA requirements.

The second paragraph of page two again states the USEPA is providing Federal Regulatory support and will work with the EPA to implement the removal action. The USEPA was not provided funding in the 99/00 fiscal year to provide regulatory support functions at Point Molate.

Did the Navy publish an article in the local newspaper(s) notifying the public the draft EE/CA and Administrative Record is available for review?

2. Section 2.1.2, Site Description, To allow public and regulatory review to happen easily please state how the estimated volume of fill was calculated instead of referring to the document where it was calculated.

How much additional debris was identified outside of the Site 1 footprint? Please identify the additional debris on Figures 2,3,4,5, and 6.

3. Section 2.2.1, Geology, On page 5, the third sentence, discussing bedrock, states, "Fractures are closed or healed with quartz and oxidation products." The implication is that vertical migration of water or contaminants would not occur because the fractures are "sealed". The bedrock boring log for core BR02-20, located downgradient of the landfill does not indicate any quartz sealing, only clay partings as weak zones. The boring log for BR02-18, located immediately upgradient of the landfill, indicates a conglomerate overlying mudstone with "remnants of highly plastic clay parting material", and "some milky white quartz filling in fracture planes up to ¼" thick." Oxidation products of limonite and manganese indicate weathering products that formed in-situ, and do not indicate the rock is not permeable. Please revise this statement to more accurately reflect the boring logs and the geology/hydrogeology of the site.

What is the geologic implication and significance of slickensides being present on the many fracture surfaces?

4. Section 2.2.2, Hydrogeology, Please discuss the hydrologic relationship between the water elevation in BR02-18 and the artesian groundwater conditions at the toe of the landfill. Please include the fact wells MW02-13 and BR02-19 are screened in bedrock.

5. Section 2.3, Surface Water, Please include on Figure 3 the surface water seep located immediately at the toe of the landfill. A discussion of the hydrogeologic conditions and circumstances producing this seep would be helpful.

The last sentence of the section should include the landfill as a source affecting groundwater and surface water (as seeps). The Navy and Regional Board staff do not agree on this aspect primarily because the necessary data has not been collected, i.e. a groundwater sample from a well completed in the colluvium at the toe of the landfill, in the seep area, to demonstrate what impact the landfill has on water quality immediately downgradient of the landfill. Regional Board staff and the Navy cannot agree a well in this location will provide the data to indicate whether or not the landfill is a source affecting groundwater. Regional Board staff considers any waste material from the surrounding UST system that has entered the landfill as part of the landfill and therefore a source of contamination from the landfill.

6. Section 2.5, Source, Nature, Extent of Contamination, Please clarify the difference between removal action alternatives as stated in the Introduction and containment as a presumptive remedy.

7. Section 2.5.1, Soil, Isoconcentration maps of contaminants in soil would provide readers with a quick, clear, view of contaminant hot spots. Please provide soil isoconcentration maps in a Final EE/CA.

8. Section 2.5.2, Groundwater, Isoconcentration maps of contaminants in groundwater would provide readers with a quick, clear, view of contaminant hot spots. Please provide groundwater isoconcentration maps in a Final EE/CA.

Please show the concentrations of groundwater contaminants increasing in wells downgradient on Figure 6. When stating that contaminant concentrations increase between the end of the disposal area and downgradient wells are bedrock wells being compared to bedrock wells, and colluvium wells being compared to colluvium wells?

The word "may" could be eliminated from the first sentence of the second paragraph by installing a well in the colluvium at the toe of the landfill, collecting a groundwater sample, and analyzing that sample for petroleum constituents and PAHs. Well MW02-13 is not representative of contaminants migrating out of the disposal area. The well is screened in bedrock as shown in cross section and documented in the boring log in the Draft Phase II RI report. An upward vertical gradient exists as noted in the artesian conditions mentioned in the Hydrogeology section. The colluvium at the toe of the landfill is the area to measure contaminant concentrations to verify what contaminants are leaching, and migrating, out of the landfill.

The California drinking water standard for vinyl chloride is <0.5 parts per billion (ppb), which is the detection limit, therefore any concentration in groundwater exceeds drinking water standards. Please state what the vinyl chloride concentration is that was detected instead of saying a low level was detected.

The landfill does not appear to be as significant a source of ravine groundwater contamination that enters the Bay as the UST and pipelines, but groundwater does surface as a seep and potential terrestrial receptors exist. Also, the Point Molate Reuse Plan, March 1997, identifies approximately up to the toe of the landfill as light industrial and single family residential (Figure 7: Conceptual Land Use Plan). Future receptors and potential exposure pathways to contaminated groundwater and surface water must be considered. Additionally the aquifer meets the USEPA and Regional Board standards to be considered a potential source of drinking water. The groundwater ingestion pathway may not have to be evaluated as an exposure pathway for human receptors, but this groundwater must be recognized as a future water resource that must meet water quality objectives as stated in San Francisco Bay Regional Water Quality Control Plan (Basin Plan).

What institutional controls are currently in place?

9. Section 2.5.3, Surface Seep Water, Please explain the difference between surface seep water and surface water. Regional Board staff has visited the landfill area on three occasions between June and November 1999. Water was present each time in the seep, SW02-04. Please clarify if seep SW02-04 is considered part of the nine seeps that are ephemerally present only after rain events.

Regional Board staff agrees it may be difficult to discern the source of contaminants detected in samples collected from SW02-04. Isoconcentration maps of contaminants would help and a well completed in the colluvium, at the seep location, above the weathered bedrock interface would help discern the source of the contaminants in the groundwater and surface water. Releases from valve boxes and USTs that entered the waste material are considered part of the landfill.

Table two, Comparison to Ambient Water Quality Criteria, should not compare acceptable TPH groundwater concentrations, based on site-specific determinations, to surface water concentrations. Please elaborate in the text what existing ecological criteria exist.

10. Section 2.5.4, Landfill Gas, Regional Board Staff reviewed Tetra Tech EMI's November 18, 1999 letter regarding the Proposed Methane Survey. How will wells be placed in the vadose zone to monitor for methane gas near the toe of the landfill where groundwater is at the surface?

11. Section 2.6, Exposure Pathway Assessment, Please refer to comment Regional Board comment number 8 regarding groundwater. When will a risk assessment be completed for the IR1 area? Future recreational visitors should be considered as potential receptors since the Point Molate Re-Use Plan identifies this area as open space/recreational use.

12. Section 3.1, Statutory Framework, The first paragraph of page 11 is unclear. Does the EE/CA have to fulfill the RAP or RAW process?

13. Section 3.2, Determination of Removal Scope, The Navy must submit a Final EE/CA according to the Regional Board Order 97-125. The due date for the Final EE/CA as listed in Regional Board Order 97-125 was September 1, 1999. Therefore, do not submit a Draft Final EE/CA as the review process will only increase the amount of time until a Final EE/CA is prepared and the remedial alternative implemented.

14. Section 3.3 Determination of Removal Schedule, This section implies a revised Draft EE/CA will not be completed. It appears if the Navy began a six-month construction in September 2000 that the construction activities would extend over the rainy season, therefore the schedule proposed by the Navy planned on completing the work during the rainy season. Regional Board staff recommends submitting this Draft EE/CA for public review now rather than submitting a revised Draft EE/CA for public review to help accelerate the schedule.

15. Section 3.4, Applicable or Relevant and Appropriate Requirements, Attached is the Regional Board recommendations for ARARs for Groundwater Remediation to be included in the Final EE/CA. Remediation of groundwater through the process of natural attenuation, to meet water quality objectives in a reasonable time frame, must be verified through a groundwater monitoring program. Groundwater monitoring is used to confirm if the groundwater contaminants are naturally attenuating. Please rewrite this section to include groundwater remediation and ARARs for groundwater remediation.

16. Section 3.5, Removal Action Objectives, The second bullet on page 14 should include contaminated groundwater in addition to contaminated soil.

17. Section 4.1.1, Description, Groundwater Monitoring, The groundwater monitoring well locations, depths, and point of compliance locations must be proposed to Regional Board staff and agreed upon before implementation of any remedial alternative. This is especially important, due to the disagreement the Navy and the Regional Board had over groundwater monitoring well locations, depths, and points of compliance at IR1. Groundwater monitoring would consist of an

evaluation program not a detection program (Title 27, Subchapter 3, Article 1, Section 20385, et al). Detection monitoring is to detect a release from the waste material. At IR1 the Navy detected a release possibly as early as 1990 and confirmed a release to groundwater in 1994. The Regional Board will consider the Final EE/CA, with an approved groundwater monitoring program and construction specifications equivalent to a Corrective Action Program, as required in Section 20385 (4). Section 20385 et al of Title 27 should be included in the ARAR table for IR1.

Gas Monitoring, How will wells be placed in the vadose zone to monitor for methane gas near the toe of the landfill where groundwater is at the surface?

18. Section 4.2.1, Description, Please identify what type of monitoring systems will be installed in the first sentence on page 17. Institutional controls for this site must developed prior to a Record of Decision (ROD) and documented thoroughly in a ROD.

Institutional Controls, How would a deed restriction prevent a change in land use from open space to recreational? The City of Richmond is the local agency that will negotiate the redevelopment of the base, will issue permits, and implement zoning and ordinances related to land use. How will the City of Richmond be included in the implementation process of enforcing institutional controls? Regional Board staff agrees that institutional controls should restrict the land and groundwater at IR1, not just to ensure the integrity of the cover, but also to eliminate an exposure pathway to ecological and human receptors. Has the Navy contacted Contra Costa Health Services (CCHS) to verify CCHS agrees they should be the agency to enforce deed restrictions on the site?

At CCHS The Land Use section oversees the permitting of wells and the Solid Waste section oversees landfills. How will the section enforcing restrictions on well permits know this area is a former landfill? What mechanisms does CCHS have in place to communicate between sections that institutional controls are in place for this land? How will CCHS track the institutional controls for IR1?

Regional Board staff agrees that a layering strategy is appropriate for implementing institutional controls but the layering appears thin from the discussion in this section.

Maintenance, Would a soil cover be constructed over the surface seep at the toe of landfill? If so how will constant surface saturation affect the integrity of the soil cover at this location? Will this be an area that will require constant maintenance to ensure the integrity of the soil cover?

19. Section 4.2.2, Effectiveness, Please include the prevention of exposure to contaminated groundwater in the second sentence. The soil cap does not protect direct contact of receptors with water at IR1, nor does a soil cover reduce refuse in contact with groundwater. Thank you for including a monitoring program that would be protective of groundwater and surface water quality. Recognizing that groundwater and surface water are impacted from waste in the landfill

is a major step in the Regional Board and Navy agreeing on appropriately placed monitoring wells and a point of compliance to evaluate any change in contaminant concentrations.

20. Section 4.2.3, Implementabiltiy, If the Navy adheres to their proposed schedule the approval for the construction and awarding the contract of the recommended alternative would occur during the rainy season that is noted in this section as possibly causing a delay. The Navy should encourage regulatory participation throughout the process of finalizing the EE/CA, developing construction specifications, and developing institutional controls to increase regulatory review turnaround time.

21. Section 4.3 Alternatives 3A and 3B-Multilayer CAP, Completing a mass balance equation will help determine if infiltration should be a remedial action objective for the landfill. The understanding of the generation of leachate from the landfill is inadequate at this time because monitoring wells are inappropriately located and screened, therefore this sentence should be changed. Regional Board comments regarding groundwater monitoring and soil gas in Alternatives 1 and 2, and institutional controls in Alternative 3 also apply to this alternative. A clay cap could reduce the amount of oxygen below that which is necessary to encourage aerobic degradation of petroleum constitutients.

22. Section 4.4, Alternative 4, Excavation and Off-Site Disposal, Excavation and Backfill, Pumped groundwater should be sampled before discharge to the Bay to verify concentrations of contaminants that are being discharged. A NPDES permit or equivalent written requirements are necessary to discharge treated water to the Bay. Why the assumption of 12 feet of backfilled soil? Could the thickness of the backfilled soil be more or less?

23. Section 4.4.2, Effectiveness, Removing refuse and contaminated soil would result in a clean closure; assuming confirmation samples indicate the oily waste and construction materials were removed. Residual pollution in the ravine from the UST system will be investigated and remediated under the UST program.

24. Section 5.1, Effectiveness of Alternatives, Exposing and removing contaminated material is effective either in the short term or long term. Point Molate does not have a community. Does access to the thermal treatment facility require transportation through a community? Mitigating measures can be taken to reduce any possible exposure to the waste material.

25. Section 5.2, Implementabiltiy of Alternatives, Section 4.4.1, Transportation, identifies Thermal Process System located in Richmond as the treatment and disposal facility. Why is the availability of a local treatment facility considered a difficulty?

26. Section 5.3, Cost of Alternatives, The California Integrated Waste Management Board (CIWMB) provided data about costs for soil covers and excavation/disposal that indicate the costs are overestimated. The costs provided by the CIWMB are based on a database of information regarding closure of landfills.

27. Section 6.0, Recommended Source Removal Action Alternative, Short-term effectiveness concerns would most likely not outweigh the benefits of Alternative 4, as discussed in Regional Board comment 24.

Specific Comments on Figures

1. Figure 2, Facility Map, Please include the near surface debris located outside the toe of the landfill in the outline of IR Site 1.

2. Figure 3, Past Releases, Please include the near surface debris located outside the toe of the landfill in the outline of IR Site 1. The surface seep at the toe of the current landfill soil cover should be identified. Please include in the legend the well symbol definitions. All wells located in the IR1 landfill area should be identified.

3. Figure 4, Site 1 Well Locations, Please include the near surface debris located outside the toe of the landfill in the outline of IR Site 1. The legend should clearly distinguish the different well installations, with different symbols. Well MW02-15 has been sampled. Well MW02-13 is a bedrock well and should be identified as a bedrock well.

4. Figure 5, Site 1 Soil Sampling Results, Please include the near surface debris located outside the toe of the landfill in the outline of IR Site 1. The legend should clearly distinguish the different well installations, with different symbols. Well MW02-13 is a bedrock well and should be identified as a bedrock well. Contaminant isoconcentrations would help define hotspots quickly and clearly. Please contour contaminant concentrations of total TPH, VOC, and PAHs at a minimum. Using different colors to represent the different compounds may allow you to show all chemical concentration contours on the same map. The contours should include the ravine as well as the landfill to clearly show the effect past releases have had on the ravine separate from the landfill. SVOC and PAH compounds are the same chemicals. Some of the sample boxes show a VOA laboratory analysis, should the laboratory analysis be VOC? SB02-13 sample box contains a question mark in the concentration for VOA. Please include the monitoring wells on the Bay side of the main road as was shown in Figure 4. Please include the surface soil sample concentrations collected at the two trench locations immediately downgradient of the toe of the landfill.

5. Figure 6, Groundwater Sampling Results, Please include the near surface debris located outside the toe of the landfill in the outline of IR Site 1. The legend should clearly distinguish the different well installations, with different symbols. Well MW02-13 is a bedrock well and should be identified as a bedrock well. Contaminant isoconcentrations would help define hotspots quickly and clearly. Please contour contaminant concentrations of total TPH, VOC, and PAHs at a minimum. Using different colors to represent the different compounds may allow you to show all chemical concentration contours on the same map. The contours should include the ravine as well as the landfill to clearly show the effect past releases have had on the ravine separate from the landfill. SVOC and PAH compounds are the same chemicals. Some of the sample boxes show a VOA laboratory analysis, should the laboratory analysis be VOC? The seep location appears located further away from the toe of the landfill than what is observed in the field. Was

the seep location physically measured or surveyed? The chemical concentration of contaminants in the water sample collected from this seep should be shown on the map and included in the isoconcentration contours. In January 1998 Regional Board staff collected a surface water sample at IR1. A map is not included with the sample results to verify that the sample was collected at this same seep location. For your information, the laboratory analytical results showed a TPH-d concentration of 80 ppb.

6. Figure 7, Potential Exposure Pathway Conceptual Site Model, A future recreational user should be added as a potential receptor.

Specific Comments on Tables

1. Table 2, Surface Water Seep Comparison to Ambient Water Quality Criteria, Footnote 3 in the table for JP5 Range Organics and Gasoline Range Organics appears incorrect. Footnote 5 for the Soil Concentration Exceeds Criteria also appears incorrect. Please refer to comments in section 2.5.3, Surface Seep Water regarding acceptable levels of TPH in groundwater. Regional Board Order 96-070 established soil cleanup levels for TPH on a site-specific basis at the Presidio of San Francisco.

2. Table 3, Detailed Analysis and Rating of Removal Action Alternatives, Please identify the Alternative Cover as a 3-foot soil cover. Please refer to Regional Board comment number 24 regarding the short term effectiveness of excavation and disposal, Alternative No. 4.

If you have any questions regarding these comments please give me a call at (510) 622-2353.

Sincerely,

Linda Dorn

Linda Dorn
Project Manager

Cc: Mr. Phillip Ramsey, USEPA
Mr. Sunjay Nair, City of Richmond
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