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From: Commanding Officer, Engineering Field Activity West, Naval Facilities Engineering Command
To: Distribution

Subj: INSTALLATION RESTORATION PROGRAM (IRP), NAVAL FUEL DEPOT, POINT MOLATE (NFDPM), CA

Encl: (1) NFDPM December 1994 Quarterly Groundwater Sampling Report dated March 14, 1995
(2) Response to Department of Toxic Substances Control (DTSC) review comments on the Waste Disposal Area draft Phase I Remedial Investigation Report and the 2nd Quarterly Groundwater Sampling Report

1. Enclosures (1) and (2) are forwarded for your information and review comments. Please forward all comments to this Command, attention: Mr. L. Ocampo, Code 09ER3LO, by May 30, 1995.

2. Should you have any questions, the point of contact is the undersigned Remedial Project Manager at (415) 244-2712.

Original signed by:
LUCIANO OCAMPO
By direction

Copy to:
California Department of Toxic Substances Control (Attn: Randy Adams)
California Regional Water Quality Control Board (Attn: Gina Kathuria)
National Oceanic & Atmospheric Administration (Attn: Denise Klimas)
Bay Conservation and Development Commission (Attn: Chris Perry)
California Department of Fish and Game (Attn: Michael Martin)
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ENCLOSURE 1

DECEMBER 1994 QUARTERLY REPORT

DATED 14 MARCH 1995

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RESPONSE TO DEPARTMENT OF TOXIC SUBSTANCES CONTROL COMMENTS ON THE NAVAL FUEL DEPOT (NPD) POINT MOLATE WASTE DISPOSAL AREA DRAFT PHASE I REMEDIAL INVESTIGATION REPORT (PRC 1994a) AND THE 2ND QUARTERLY GROUNDWATER SAMPLING REPORT (PRC 1994b), DATED DECEMBER 27, 1994

Comment Number 1: *Section 3.1.1, Soil Sample Collection. According to Table 3-1, only two samples were taken in "bedrock"; one in bore hole SB02-05 and one in bore hole SB02-07. Contaminants consist of JP-4, JP-5, diesel, and bunker fuel; volatile organics (VOC); and semi-volatile organics (SVOC). Since the bedrock is described as being fractured and weathered near the bedrock/colluvial contact, it is highly likely that contamination exists in this zone at other bore hole locations. The department recommends that additional sampling into the bedrock be performed at other locations.*

Response Evaluation: Additional investigation of the bedrock or the bedrock transition zone may enhance present knowledge of vertical contaminant transport pathways but would not necessarily enhance understanding of the lateral extent of contamination. If an additional investigation within the WDA is approved by the Navy under a future contract task order (CTO), PRC Environmental Management, Inc. (PRC) may propose a limited number of borings or coreholes into the bedrock. These coreholes would be used to assess lithologic differences in bedrock and the potential for contaminant migration in fractured shale beds.

It is also possible that additional characterization of bedrock downgradient of the WDA may be necessary to support the selection of a removal action in a feasibility study (FS) or engineering evaluation/cost analysis (EE/CA). Additional data requirements will be specified in future work plans.

Comment Number 2. *Section 4.0 Geologic and Hydrogeologic Setting. The site specific discussion of the geology of the Waste Disposal Area is incomplete. The following information is lacking and needs to be provided: strike and dip of rock units, strike and dip of joints in rock units (trends), and density of fracturing and jointing (i.e., relative spacing of joints and fractures). A discussion of*

secondary porosity due to fracturing is referenced to the Treatment Ponds Area, Final Site Characterization Report, 1994. Please include the referenced secondary porosity discussion in the subject report. This information should be provided sense it will aid in evaluating the data.

The hydrogeologic discussion states that one sample of colluvium from bore hole SB02-01 was analyzed for physical properties, including permeability. This sample apparently has a hydraulic conductivity similar to permeability samples obtained from the colluvium of Treatment Ponds Area. The Department believes this to be a premature conclusion based on the fact that only one sample from the Waste Disposal Area was evaluated for hydraulic conductivity. Comparing the Treatment Ponds Area colluvium to the Waste Disposal Area colluvium may also not be valid based on differences in topography between the two areas and possible differences in rock lithology, i.e, variations in lithology between metasediments, sandstones, and siltstones.

Response Evaluation: As stated in response number one, further lithologic distinction and depth to bedrock may be needed to support a removal action selection. The steep-sided ravine and the resulting topographic profile of the WDA acts as the primary mechanism for surface and subsurface flow, following the topographic gradient. Therefore, regardless of the strike and dip data, the Franciscan Formation would support only minor additional flow when considering groundwater and contaminant transport within the WDA. If additional characterization within the WDA is approved, its objectives would include: (1) delineation of higher permeability intervals within the Franciscan Formation (such as highly fissile shales); (2) assessment of lithologic differences between bedrock in the WDA and the Treatment Ponds Area (TPA); and (3) possible identification of trends in fracturing and jointing to support both design requirements under a remedial action and understanding of vertical migration pathways.

In future reports pertinent to the WDA, appropriate information from previous investigations at Point Molate will be summarized and referenced but not included in its entirety.

Although the physical properties for colluvium within the WDA were determined by only one physical sample, its value is believed to be representative of colluvium throughout the WDA and typical of much of Point Molate. Physical properties of colluvium are consistent between the WDA sample and those samples discussed in the TPA final site characterization report (PRC 1994c). Also, lithologic descriptions of colluvium are consistent among the extensive borings at NFD Point Molate. The colluvium is a tight (low hydraulic conductivity) clayey to silty sand with weathered bedrock fragments that, despite varying bedrock lithology and topography, is consistent throughout borings at NFD Point Molate.

Comment Number 3: *<u>Section 5.3, Summary of Analytical Results</u>. Section 3.1.1, Soil Sample Collection, states that soil samples collected for VOC analysis were collected by using brass selves and other samples were removed from sample barrels and placed in glass containers. Sample intervals, from bore hole number SB-02-01 at 17.5 to 18.0, 19.5 to 20.0 and 20.0 to 20.5 feet deep were sampled with brass selves for VOC analysis. However, Appendix G, Soil and Groundwater Analytical Data, only shows VOC data for SB02-01 at the 20.0 to 20.5 foot interval. Please provide this missing analytical data.*

It would also be very useful to compare the VOC soil data from samples obtained from and transported in brass selves to those removed from sample barrels and placed in glass containers. The preferred method for sampling and transporting soil samples for VOC analysis is by brass selves or by placing samples in containers pre-weighed with methanol. The method used in this sampling program (removing the sample from the sample barrel and placing it in a glass container) generally results in lower VOC detection in the laboratory.

Response Evaluation: Samples SB02-01 (17.5-18.0) and SB02-01 (19.5-20.0) were collected in brass sleeves but were not submitted for VOC analysis; therefore, no analytical data are missing.

The method of collecting method samples for VOC analysis did not alter the understanding of the nature and extent of contamination and does not necessarily result in lower VOC detections. Only one sample submitted for VOC analysis was submitted in a brass sleeve and no VOCs were detected in this sample. Also, detection of VOCs from soil samples collected within the WDA is less important given the known widespread releases of JP-5 or diesel fuel on a historical basis. More important is the detection of VOCs in groundwater that may be migrating toward or into San Francisco Bay.

Comment Number 4: *Appendix E, Data Quality Assessment. In general, there are a significant number of laboratory and validation qualifiers used in the data presentation in Appendix G. These qualifiers range from 1) Method Compliance, 2) Holding Times, 3) Calibration, 4) Blank Contamination, 5) Surrogate Recovery, and 6) Matrix Spike and Matrix Spike Duplicates. The largest number of validation qualifiers are related to calibration problems. Please discuss details of the calibration problems and discuss methods to prevent further calibration problems.*

Response Evaluation: Laboratory data are subject to various levels of performance criteria. Two of these levels include method performance criteria and validation criteria. During the validation process, the data are more carefully scrutinized. Initial and continuing calibrations for NFD Point Molate sample delivery groups (SDGs) U7178 and U8059 analyses (collected in the WDA soil and groundwater samples) present an example of two different levels of qualification. According to the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) Statement of Work for Organics Analysis (EPA 1993) the majority of the initial and continuing calibration results for these two SDGs are acceptable without qualification. Upon validation, however, these same results are evaluated against a higher level of performance.

The majority of results in SDGs U7178 and U8059 did not require qualification when using the laboratory method criteria, but were qualified based on the stricter validation criteria. Therefore, the calibration problems discussed in the comment were in fact minor.

Comment Number 5. *<u>Section 5.0 Analytical Results</u>. The focus of the analytical results discussion is primarily the shoreline area, IR-04 review of groundwater data from the 2nd Quarterly Groundwater Sampling Report and the Waste Disposal Area Draft Phase I RI Report suggests that there is a correlation of groundwater contamination in monitoring wells from the Waste Disposal Area, IR-01 and some monitoring wells in the Shoreline Area, IR-04. The following relationships exist between groundwater contamination detected in Landfill Area wells and Shoreline Area Wells.*

Shoreline Area Wells	Disposal Area Wells	Common Contaminant
ERM10-01	MW02-07 MW02-06 MW02-01	VOC SVOC TPH
ERM10-02	MW02-07 MW02-06 MW02-01	VOC TPH
MW10-09	MW02-07 MW02-06 MW02-01 ERM-EW2	SVOC TPH
MW10-14	MW02-07 MW02-06 MW02-01 ERM-EW2	SVOC TPH
MW10-10	MW02-07 MW02-06 MW02-01 ERM-EW2	VOC

The Department recommends further evaluation of this relationship between wells in order to develop the extent of the contaminated groundwater plume originating from the Waste Disposal Area.

Response Evaluation: Depending on the location of the wells listed in the above table, WDA contamination may impact some downgradient wells. The relationship between groundwater at the WDA and shoreline monitoring wells downgradient of the WDA has been further evaluated after all four quarters of

data were reviewed. Of the shoreline area monitoring wells listed in the reviewer's comments, sources other than those in the WDA can be attributed to contaminants detected in samples from monitoring wells ERM10-01, ERM10-02, and MW10-14. The detection of VOCs, SVOCs, and TPH in groundwater samples from well ERM10-01 can be attributed to leakage from a subsurface pipeline along Burma Road in 1987 and 1988. This monitoring well also contains a thin immiscible phase of mixed bunker and diesel fuel ranging from 0.01 to 0.2 feet thick. The detections of VOCs and TPH in groundwater samples from a monitoring well ERM10-02 can probably be attributed to the same pipeline leak. The isolated, infrequent, and low concentrations of VOCs, SVOCs, and TPHs (2nd quarter) and SVOCs (3rd quarter) detected in samples from monitoring well MW10-14 are attributable to sources other than the WDA; these compounds may be migrating from an unknown source near Drum Lot Number 2 or from the nearby public parking area. The low concentrations VOCs (3rd quarter only), SVOCs (2nd and 4th quarters), and TPH (2nd and 4th quarters) detected in samples from monitoring well MW10-09 are most likely attributable to sources within the WDA. All components detected are constituents of fuel and are probably the result of the migration of JP-5 and some residual diesel from the WDA. Similarly, the detection of TPH as other components during the first and third quarters in samples from monitoring well MW10-08 is also most likely attributable to fuels migrating from the WDA. These monitoring wells (MW10-09 and MW10-08) are located directly downgradient of the WDA.

However, the detection of 1,1-dichloroethene (1,1-DCE), 1-1-dichloroethane (1,1-DCA), and 1,1,1-trichloroethane (1,1,1-TCA) in samples from monitoring well MW10-10 during all four quarters is not attributable to sources within the WDA. These components, volatile chlorinated compounds, were not detected in WDA groundwater samples and are most likely attributable to another source, possibly from historical storage in Drum Lot Number 2 or from operational practices at the Navy's Disease Vector and Ecology Control Center.

Also, as stated earlier, TPH purgeable as other components and TPH extractable (bunker fuel probably misidentified from diesel or JP-5) was detected in samples from outfall number 4 during the December 1994 heavy rainfall period. This outfall, located near monitoring well MW10-09, discharges low-levels of constituents derived from fuels in the WDA. Constituents detected in well MW10-09 may be the result of infiltration of this surface water runoff.

REFERENCES

PRC 1994a. Naval Fuel Depot Point Molate Waste Disposal Area Draft Phase I Remedial Investigation Report. October.

PRC 1994b. Naval Fuel Depot Point Molate 2nd Quarterly Groundwater Sampling Report. September.

PRC 1994c. Naval Fuel Depot Point Molate Treatment Ponds Area Final Site Characterization Report. July.

U.S. Environmental Protection Agency (EPA) 1993. Statement of Work for Organics Analysis. OLM01.9. July.