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NFD POINT MOLATE
SSIC NO. 5090.3.A

STATE OF CALIFORNIA PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
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File No. 2119.1075(LHG)

Lieutenant Commander Chuck Vickers March 8, 1991
Fuel Dept. NSCO
Point Molate Site
Richmond, CA 94801

Dear Lieutenant Commander Vickers:

Transmitted herewith are my comments pertaining to the below named project.

Comments on Point Molate Naval Fuels Depot Groundwater Monitoring Plan/Site Characterization Study

PRC Environmental Management, Inc. was contracted to perform the above investigation under Contract Number N62474-88-D-5086. Several limited investigations of the Point Molate site have been performed previously. The most recent studies were performed by ERM-West beginning in April 1989 and completed in September 1990. PRC performed a site inspection, including sampling, between September 14 to October 6, 1990. Results of this preliminary investigation have not to date been submitted to the RWQCB.

The work proposal is a very thorough detailed document outlining a broad scope of work. However, additional more detailed investigations may have to be undertaken in the future if soil cleanup work is required. The final report of investigations to be submitted at the conclusion of this investigation must contain several alternative remedial action strategies to be instituted, if results warrant.

Past operations have resulted in soil and bay water contamination from broken and/or leaking underground fuel transport lines, tank overfilling and from on site waste disposal. Past investigations have focused extensively on shallow soil characterization in the tank area and along pipelines where spills and leaks are known to have occurred. Less attention has focused to date on contamination along the shore line where contaminated groundwater may be entering the bay. Characterization of groundwater along the shore line must be considered a first priority. Soil contamination is the main source of groundwater contamination. Further detailed and extensive soil investigations may be required together with further groundwater studies to furnish reliable data to permit formulation of remedial action strategies.

As outlined in the proposal, three major areas must be investigated. These areas are: hillside areas, grit and waste disposal areas and the shoreline areas.

General Comments

The consultant lists several analytic methods that shall be utilized for soil analyses. Method 8015 (modified) is suitable for analyzing volatile and total hydrocarbons. However, no extraction methods are detailed in the proposal. Method 3550/8015 is suitable for gasoline, kerosene and diesel if sonication extraction is followed by capillary GC-FID (gas chromatography/flame ionization detection) quantification. Method 5030 for extraction and 8015 (modified) for analyses, using purge and trap extraction followed by quantification of volatile hydrocarbons using GC-FID must be used for total volatiles in jet fuel or gasolines in soils. Method GC-FID/3550 for extraction also is suitable for jet fuel and diesel. Heavier fuels also may be analyzed by these methods. BTX&E distinction can be done using method 8020 or 8240 for unleaded gas, diesel, jet fuels and kerosene in soils. However, the laboratory also must identify the 10 highest peaks not included within this range. For TPH and BTX&E method 8260 cryogenic focusing is suitable for soils. For unknown fuels method GCFID(5030) may be suitable for soils. Water analyses for unknown fuel can use methods GCFID(5030) for gasoline and 3510 for diesel and jet fuel. For BTX&E in any of these fuels methods 602,624 or 8260 is suitable. Method 418.1 with silica gel cleanup followed by IR or gravimetric method may be suitable for tidal flat sediment samples. All analyses must be performed by a California Certified Laboratory.

Records are available in the ERM-West report covering historic and present storage of various types of fuels in tanks on site, to permit analytic methods to be chosen which will match historic usage. Historic volatile hydrocarbon leaks may not be detectable due to vaporization of the volatile compounds over time.

The consultant suggests the use of 0.01 screen slot size for use in most monitoring wells. The fine screen will retard entry of viscous hydrocarbons. Although suitable in fine grained material, this screen slot size retards water flow and does not materially decrease turbidity, but does restrict water entry as well as making well development more difficult. The use of 0.02" screen slot size is considered to be more suitable. Adequate well development will, however, be necessary to assure low turbidity when measured in NTU units. The filter pack should not extend more than 2 feet above the top of the slotted screen. Monitoring wells must be constructed without sumps. Very fine sand may be used to form the seal between the filter pack and annulus seal. If bentonite is used the seal should be 1.5 to 2.0 feet in thickness, and adequate time must be allowed for hydration of the bentonite before placing the annulus seal. Where overdrilling has occurred, the bottom of the hole must be filled with bentonite or grout.

Well development in addition to bailing must include surging or swabbing carried out for a sufficient length of time to eliminate

turbidity. Both quantity of water removed and length of time spent in development must be recorded.

To determine if contaminants are presently entering bay waters, a number of groundwater monitoring wells along the bay shoreline have been proposed. These important wells may not furnish accurate analytic data if they are compromised by intrusion of bay waters. A staff gage containing a continuous recorder must be installed on the tidal flats. A continuous record of tidal fluctuations must be measured for no less than 48 hours. Continuous recorders for water level measurements also must be installed in several selected nearshore wells and compared to staff gage readings to determine if tidal influence is present and lag time of tidal effects within wells.

Fluctuating water levels in nearshore wells may be the result of tidal intrusion into a permeable formation or are the result of pressure effects from tidal rise. Bay water intrusion into permeable formations will result in major dilution of contaminants in groundwater. Groundwater samples for analyses of chloride must be obtained from these wells. Both low and high tide lag in monitoring wells must be established to obtain samples at the highest or lowest tidal stages in the wells, as indicated by the water level recorders in the nearshore wells. Fluctuations in chloride content in monitoring wells will indicate tidal intrusion and the effectiveness of these wells.

Review of Site Investigations

Area 1

Groundwater monitoring well MW12-6 along the shoreline must be sufficiently far inshore to be unaffected by possible tidal surge. This well must determine if hydrocarbons which entered the bay from tank 17 are still present and impacting groundwater. Borings 4, 13, 14 and 15 (previous study) were analyzed using methods 5030/8020 which determines volatiles. The age of the spill would indicate that volatiles no longer are present, resulting in false negative analyses. One more borehole must be drilled in the pathway of this spill and soil samples must be analyzed by more appropriate methods to determine if heavier hydrocarbons continue to be present.

Area 2

Area 2 is the site of the waste disposal site. It has been reported that hydrocarbons from an upgradient spill had appeared at the foot of the disposal site. No less than one boring must be placed as close to the toe of the disposal site as physically possible. Soils must be analyzed for metals as well as hydrocarbons. In the event soil contamination is found, the boring should be converted to a monitoring well. No soil boring has been proposed in the vicinity of catchment # 2.

Area 3
Releases have reportedly occurred from tanks 5, 7 and 13. A monitoring well should be placed upgradient of catchment # 2. Adequate confirmation of the existence of contamination has been established in the previous investigation.

Area 4
Borings 55, 66, 67, 68 and monitoring well MW-1 showed elevated levels of hydrocarbon contamination. At least 1 additional well must be installed in area 4 to determine if groundwater within the area is impacted. Tank #1 and # 2 should be added to area 4 and no less than 1 soil boring should be placed next to each tank. Boring 71, downgradient of tank 5 showed high concentrations of contaminants. Boring 66, 67 and 68 also showed contamination in the jet fuel and kerosene range. No less than one boring must be drilled in the area between these locations to determine if contamination migrated from tank 5 to area 4. One soil boring should also be completed in the vicinity of tank 4.

Area 5
The south corner of the office building is a known contamination area. The vertical and horizontal extent of contamination must be established to permit planning for excavation of contaminated soil exceeding 100 ppm of hydrocarbons.

Area 6
No comment.

Area 7
No comment

Area 8
Check area of valve boxes 23 and 24.

Area 9
Add area downgradient of tank 21 and valve box 28 to investigation.

Area 10
No comment

Area 11
Two monitoring wells should be placed in close proximity to the waste water treatment ponds, in the area between the ponds and the shoreline. Several soil borings should be placed in line with and between the extraction wells. Proposed boring B11-4 should be converted to a monitoring well. All shoreline monitoring wells should wherever possible be placed sufficiently far in-shore to prevent tidal intrusion, which would negate monitoring of groundwater. Several soil borings should be placed in close proximity to the pipeline trench. Place one soil boring northerly of tank F, which can be converted to a monitoring well if contamination is encountered. All soil samples in area 11 must be

checked for both kerosene and diesel range hydrocarbons as well as for BTX&E.

Sandblast Grit Disposal Areas

The sandblast grit disposal area near building 85 paint shop and building 123 maintenance shop must be investigated to determine the extent of disposal. In the event quantities of grit exceeding several cubic yards are present, no less than one groundwater monitoring well must be installed at each area. Groundwater analyses for metals must be performed.

Sediment Sampling

Sediment sampling in drainages and ravines should be a valuable tool to determine if hydrocarbon spills flowed on top of, or at shallow depth down these drainage channels. Data from such samples will serve as a valuable guide in placing deeper soil borings.

Sediment samples of tidal flats along the shoreline should indicate the areas into which hydrocarbon spills have channeled and the extent of past hydrocarbon contamination of San Francisco bay waters from this site.

If you have any questions or wish to arrange for a meeting please call me at (415) 464-1095.

Sincerely

Louis H. Goldsmith

Louis H. Goldsmith
Associate Engineering Geologist