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January 19, 2010

In reply refer to:
SL607392800:smcclain

Mr. Scott Martin
Kinder Morgan Energy Partners
1100 Town & Country Road
Orange, CA 92868

Dear Mr. Martin:

SUBJECT: ADDENDUM NO. 6 TO CLEANUP AND ABATEMENT ORDER NO. 92-01, MISSION VALLEY TERMINAL, SAN DIEGO

Enclosed is Addendum No. 6 to Cleanup and Abatement Order ("Order") No. 92-01. The Order was issued under the authority of California Water Code sections 13267 and 13304, in response to the unauthorized discharge of petroleum hydrocarbons to soil and groundwater at the facilities collectively referred to as the Mission Valley Terminal. Addendum No. 6 to the Order modifies the Monitoring and Reporting Program.

If you have any questions regarding the Order, please contact Mr. Sean McClain of my staff at (858) 627-3980 or via email at smcclain@waterboards.ca.gov.

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to:" In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

Respectfully,

MICHAEL P. MCCANN
Assistant Executive Officer

Attachment No.1: Addendum No. 6 To Cleanup And Abatement Order No. 92-01

cc: Ms. Grace Lowenberg
Deputy City Attorney,
1200 Third Avenue, Suite 1100
San Diego, CA 92101

Ms. Jennifer Rothman
LFR Levine-Fricke
3150 Bristol Street, Ste. 250
Costa Mesa, CA 92626

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ADDENDUM NO. 6 TO
CLEANUP AND ABATEMENT ORDER NO. 92-01

KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL COMPANY, SANTA FE PACIFIC PIPELINE PARTNERS, LP, AND EXXONMOBIL OIL CORPORATION

MISSION VALLEY TERMINAL
9950 & 9966 SAN DIEGO MISSION ROAD
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board) finds that:

1. Except as contradicted or superseded by the Findings set forth in this Addendum, all of the previous findings in Cleanup and Abatement Order No. 92-01 and Addenda thereto (CAO) are incorporated into this Addendum.

2. Kinder-Morgan Energy Partners, LP O/P SFPP, LP, Powerine Oil Company, Santa Fe Pacific Pipeline Partners, LP, and ExxonMobil Oil Corporation (hereinafter the Dischargers) are the parties responsible for the cleanup at the Mission Valley Terminal (MVT).

3. Pollution from discharges of petroleum hydrocarbon fuel waste from the MVT extends approximately 4,900 feet beyond MVT to the southwest across the parking lot at Qualcomm Stadium (hereinafter referred to as off-terminal pollution). The Qualcomm Stadium complex and associated parking areas are owned by the City of San Diego.

4. The groundwater pollution from discharges at the MVT must be monitored, contained, and cleaned up. The Dischargers submitted Recommendations for Modifications to the Monitoring and Reporting Program[1] to focus on the current state of remedial progress and account for additional site characterization completed since the issuance of Addendum No. 5 to the CAO. Expansion of the groundwater monitoring well network and remediation system extended the monitoring coverage laterally and vertically.

5. Analysis of groundwater samples for indicators of aerobic and anaerobic biodegradation is used to monitor the area downgradient of the LNAPL zone for

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[1] LFR, Recommendations for Modifications to the Monitoring and Reporting Program, Addendum No. 5 to Cleanup and Abatement Order No. 92-01, Mission Valley Terminal, San Diego, California (TSMC: 40-0054), May 1, 2009.

characterization of the geochemical environment for biodegradation. Monitoring of selected groundwater monitoring wells within and directly upgradient of the LNAPL zone will provide sufficient data for continuing evaluation of changes to groundwater as remediation of the LNAPL zone progresses.

6. Soil vapor monitoring is being used to assess performance of the soil vapor extraction system used for cleanup of the off-terminal property. A large number of soil vapor monitoring (SVM) probes have been installed and sampled, and a review of those data and experience suggests opportunities to optimize the performance monitoring approach. Modifications of the soil vapor monitoring program will focus data collection and evaluation activities on those SVM probes that provide valuable monitoring data.

7. The expansion of the soil vapor extraction (SVE) well network, completed in the fourth quarter of 2006, second quarter of 2008, and in the first quarter of 2009, have increased the number of individual extraction wells from 40 to 172 and extended the vapor extraction influence to more directly target the depth interval of the LNAPL zone. A review of the SVE well construction details, extracted vapor concentration and flow rate data, and experience with the operation of the SVE system suggests that system performance can be optimized by focusing the vapor extraction on a subset of all possible wells.

8. This action is an Order to enforce the laws and regulations administered by the San Diego Water Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321 of the Resources Agency Guidelines.

IT IS HEREBY ORDERED, that Cleanup and Abatement Order No. 92-01, addendum No. 5, Attachment 1, Monitoring and Reporting Program is amended as follows:

1. **Directive No. 2. (a) is replaced by the following.** All groundwater monitoring wells must have samples collected and analyzed on a quarterly basis except the following wells, which will be gauged on a quarterly basis, and sampled and analyzed on an annual schedule:

Well Number	Well Number	Well Number
M-2	R-9	R-48AD
M-6	R-45AS	S-4
R-4	R-45AM	S-5
R-6	R-45AD	S-9
R-7	R-48AS	S-10
R-8	R-48AM	S-13

Monitoring wells that are sampled on an annual basis shall be sampled during the fourth quarter of each year.

All sample collection, storage, and analyses shall be performed according to protocols included in the U.S. Environmental Protection Agency (USEPA), *"SW-846: Test Methods for Evaluating Solid Wastes Physical/Chemical Methods"* (Version 5, dated April 1998). All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the San Diego Water Board. Specific methods of analysis must be identified. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the San Diego Water Board. If analytical protocols other than USEPA approved methods or Standard Methods are used, the exact methodology must be submitted for review by the Regional Board prior to use.

All samples shall be analyzed using USEPA method 8015 for total petroleum hydrocarbons (TPH) quantifying gasoline and diesel fuel fractions and EPA method 8260b for volatile organic compounds including benzene, toluene, ethylbenzene, xylenes, methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA) and all other fuel oxygenates.

2. **Directive No. 2. (b) is replaced by the following.** On a quarterly basis, all off-terminal groundwater monitoring wells, except for the following wells, must be sampled for aerobic and anaerobic biodegradation indicators including pH, dissolved oxygen, alkalinity, methane, ferrous iron, sulfate, and nitrate:

Well Number	Well Number
R-32	**R-10**
R-33	R-11
R-34	R-12
R-35	R-15
R-36	R-16
R-37	R-18
R-43	T-11
R-79	T-12
R-9	

Bolded = all wells within well cluster

On an annual basis, the following groundwater monitoring wells must be sampled for aerobic and anaerobic biodegradation indicators including pH, dissolved oxygen, alkalinity, methane, ferrous iron, sulfate, and nitrate:

Well Number	Well Number
R-49AS	T-3
R-50AS	T-21
R-51AS	S-12
R-52AS	**R-10**
R-53AS	**R-33**
R-54AS	**R-35**
R-55AS	**R-43**
R-56AS	**R-79**
R-57AD	
R-58AD	

Bolded = all wells within well cluster

3. **Directive No. 3. (a) is replaced by the following.** Monitoring shall be conducted at all existing and future soil vapor monitoring (SVM) probes that are located near or below the original inferred top of the LNAPL zone.

The monitoring of this set of SVM probes will include:

Bi-weekly (every 14 days), measurement of total hydrocarbon concentrations and respirometry gases (O_2, CO_2). This monitoring can be performed using properly calibrated field instruments. If field instruments are used, the total hydrocarbon analysis should utilize a flame ionization detector (FID) calibrated to manufacturing specifications.

Of this set of SVM probes, analyze a minimum of 25 percent of the higher concentration samples by gas chromatography-flame ionization detector (GC-FID) by USEPA Method, TO-14. The subset of 25 percent of higher concentration monitored probes shall be rotated every two weeks allowing all monitored probes to be sampled at least once during each quarter and 3 to 4 times annually. For the purposes of this order, the "higher concentration samples" mentioned above are defined to be those for which SVM probe concentrations have been observed to be above 20 parts per million by volume (ppmv) based on data collected during the first quarter of 2009 and that are located in active SVE areas. If SVE operation is stopped in any area, then those SVM probes should again be included in the USEPA Method TO-14 sampling and analysis discussed above, independent of the concentrations in the first quarter of 2009.

Gas chromatography-mass spectrometry (GC-MS) analyses can be used in place of GC-FID whenever this monitoring program calls for GC-FID vapor or soil analysis, as long as GC-MS is used consistently for all analyses. Report the total hydrocarbon concentration and the composition in terms of carbon number ranges (e.g., percent TPH in the ranges <C4, C4-C6, etc).

4. **Directive No. 3. (b) is replaced by the following.** On a semiannually basis, during the second quarter of the year using the SVM probes identified in Directive 3 herein, perform in-situ respirometry test to assess for oxygen uptake/aerobic biodegradation rates.

   During the fourth quarter of the year, perform an in-situ respirometry test using all 89 SVM probes that are located in or near the original LNAPL-affected soil.

5. **Directive No. 3. (c) is replaced by the following.** The selection of individual primary SVE wells will be based on the following criteria:

   a) SVE wells with a single screen depth and all combination SVE/GWE wells shall be included as primary SVE wells.

   b) At SVE well locations with two screened intervals, the deeper (B) screened interval, which generally show higher total VOC concentrations, shall be selected except in cases where the shallower (A) screen has higher total VOC concentrations; or where concentrations are similar in the (A) and (B) screened interval and the (A) screened interval has a greater proportion of lighter (<C8) hydrocarbon fractions.

   c) At SVE well locations where both screen depths showed high total VOC concentrations, similar hydrocarbon fraction, both screen intervals shall be included as primary wells.

   All future SVE wells that meet the criteria in this directive shall also be considered as primary SVE wells.

   On a weekly basis, measure vapor flow rates and vacuum at all SVE wells. Additionally, on a weekly basis, collect measurements of total VOC concentrations and respirometry gases (O_2, CO_2) at the primary SVE wells, as defined above. A FID calibrated to manufacturing specifications must be utilized for total VOC analysis.

   Samples must be collected for laboratory analysis from a 50 percent subset of the primary SVE wells monitored for VOC concentrations. Samples must be submitted for laboratory analysis of total hydrocarbon concentration and hydrocarbon fraction composition (C_4-C_5, C_6-C_7, C_8-C_{10}, C_{11}-C_{14}) by USEPA Method TO-14. The subset of 50 percent of monitored wells shall be rotated every week so that all primary well locations are scheduled to be sampled at least twice every month.

6. **Directive No. 3. (d) is replaced by the following.** On a monthly basis, measure vapor flow, vacuum, total VOC concentrations, and respirometry gases (O_2, CO_2) at all operational SVE wells. This monitoring must be performed using

properly calibrated field instruments. A FID calibrated to manufacturing specifications shall be utilized for total hydrocarbon analysis.

7. **Directive No. 4. (b) is replaced by the following**. Groundwater elevation data shall be presented in the fourth quarter report each year in tabular form with well number, date of observation, depth to groundwater, groundwater elevation, top of casing elevations, depths to the top of well screens, length of well screens, and total depth for each well included in the monitoring program. The date for all wells containing LNAPL shall also include the measured thickness of LNAPL on the groundwater elevation table. A groundwater elevation map must be prepared for the shallow alluvium [AS] interval with the groundwater flow direction and calculated hydrologic gradients(s) clearly indicated in the figures(s). Historical groundwater elevations observed during the previous three-year period shall be tabulated in each report.

8. **Directive No. 4. (c) 1. is replaced by the following.** Analytical results from groundwater samples shall be presented in tabular format and include the following minimum information: well number, sample collection date, and concentration data for each constituent of concern (COC) required in this Order. Time versus concentration plots and distance versus concentration plots shall be included.

9. **Directive No. 4. (c) 3. is replaced by the following** The Dischargers shall provide separate isoconcentration maps for the COCs benzene, MTBE, TBA, and MTBE plus TBA. For well locations that are well clusters, each isoconcentration map will be prepared using the highest concentration observed at each well cluster. Isoconcentration maps shall be prepared using log scale (e.g. 1, 10, 100, 1000, etc.). A cross section shall be included, oriented along the general core of the plume showing MTBE or MTBE plus TBA concentrations at each well or interval within a well cluster along the cross section.

10. The Dischargers shall implement the updated Monitoring and Reporting Program commencing with the quarterly report due on **April 30, 2010**.

Ordered by:_____
MICHAEL P. MCCANN
Assistant Executive Officer