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Mr. Stephen Defibaugh  
Kinder Morgan Energy Partners, L.P.  
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August 12, 2016

Subject: Effluent Monitoring Report, April 1 to June 30, 2016 (Second Quarter 2016)  
SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California  
(NPDES No. CA0063509, CI No. 7497)

Dear Mr. Defibaugh,

This report has been prepared by CH2M HILL Engineers, Inc. (CH2M), on behalf of SFPP, L.P. (SFPP), an operating partnership of Kinder Morgan Energy Partners, L.P. (Kinder Morgan), to summarize National Pollutant Discharge Elimination System (NPDES) monitoring related to the discharge of treated groundwater from SFPP's product recovery and groundwater extraction (GWE) system. This system is installed at the SFPP Norwalk Pump Station located within the Defense Fuel Support Point Norwalk, at 15306 Norwalk Boulevard, Norwalk, California (the site).

SFPP performed certain operations, maintenance, and monitoring tasks on the product recovery and GWE systems. SFPP retained CH2M to prepare this report based on the NPDES monitoring performed by SFPP. This report describes NPDES monitoring activities during the period of April 1 to June 30, 2016.

## Remediation Systems

SFPP currently operates remediation systems consisting of soil vapor extraction (SVE), total fluids extraction (TFE) of free product, GWE for hydraulic control, and treatment of extracted soil vapors and groundwater to address two specific areas at and near the site: the south-central area and the southeastern area. Operation of the West Side Barrier (WSB) GWE system (WSB system) for remediation of the western offsite area was discontinued in August 2008 based on the reduced lateral extent and low concentrations of volatile organic compounds (VOCs) west of the site. SFPP also operates a horizontal biosparge system to enhance mass removal of free-phase and dissolved-phase hydrocarbon constituents in the south-central area of the site. Further discussion of this system is provided below.

SVE is performed using a blower to remove soil vapors from the south-central and southeastern areas. The extracted vapors are conveyed to a knock-out tank that separates entrained moisture from the soil vapors. Accumulated moisture in the knock-out tank is treated by the main groundwater treatment system (GWTS) described below. The soil vapors are then treated in a thermal oxidizer where VOCs are converted to carbon dioxide and water prior to being discharged to the atmosphere. Operation of the GWTS and SVE system is conducted in accordance with Permits to Construct (Application Nos. 569588 and 567723, respectively; ID 110835) issued by the South Coast Air Quality Management District (SCAQMD).

The main GWTS processes free product and groundwater from up to 20 extraction wells located in the south-central area and up to 5 extraction wells located in the southeastern area of the site. During the second quarter 2016, the GWTS extracted from 13 wells equipped with pneumatically operated top-loading total fluids pumps, including 10 wells in the south-central area (GMW-9, GMW-10, GMW-22, GMW-24, GMW-25, GMW-O-20, GMW-O-23, MW-SF-2, MW-SF-11, and MW-SF-12) and 3 wells in the southeastern area (GMW-36, GMW-O-15, and GMW-O-18). Free product and groundwater recovered by pneumatically operated top-loading total fluids pumps are piped to an oil-water separator (OWS). Free product from the OWS is collected in a storage tank and recycled at an offsite location. Water from the OWS is treated using liquid-phase granular activated carbon (LGAC). Treated water is routed through an onsite 3,000-gallon equalization tank. Two fluidized bed bioreactors (FBBRs) installed downstream of the equalization tank treat fuel oxygenates such as tertiary butyl alcohol (TBA) and methyl tertiary butyl ether (MTBE) that are not treated in the LGAC. The treated groundwater then passes through polishing LGAC units prior to discharge in accordance with the NPDES permit (No. CA0063509, CI No. 7497).

SFPP installed a horizontal biosparge system in the south-central area of the site in 2015. Construction of the biosparge well is documented in the report titled, *Horizontal Biosparge Well and Soil Vapor Monitoring Probe Completion Report* (CH2M, 2015). The biosparge system injects ambient air into the horizontal biosparge well, BS-01, via a rotary screw air compressor, at a maximum design rate of approximately 500 standard cubic feet per minute (scfm). SFPP's SVE system has an interlock that ensures the biosparge system cannot operate unless the SVE system is operating. Operation of the SVE system reduces the potential for off-gassing of VOCs during biosparge operations. Pilot testing commenced on January 6, 2016, and is anticipated to continue for approximately 1 year in order to evaluate the feasibility of system expansion.

## Summary of Quarterly GWTS Operations

A total of 856,633 gallons of groundwater were extracted from the south-central and southeastern areas during the second quarter 2016. No groundwater was extracted from the WSB area during this period. Table 1 summarizes the average daily flow rate during the reporting period. The GWTS operated throughout the quarter, with the following exceptions:

- The GWTS was turned off on April 6, 2016, to facilitate gauging and sampling activities for the first semiannual groundwater sampling event. The system was restarted on April 14, 2016.
- The GWTS was turned off on April 14, 2016, to clean out the OWS, sump, equalization tank, and transfer tank. In both cases, the system was restarted on the same day.
- The GWTS shut down due to a power outage on April 25, 2016. The system was restarted later that day.
- The GWTS was turned off on June 9, 2016, for a carbon changeout of the lead LGAC unit and the two polishing vessels. The system was restarted later that day.
- The GWTS was turned off on June 24, 2016, to facilitate groundwater sampling activities associated with biosparge pilot testing. The system remained offline through the end of the second quarter 2016 to facilitate installation of the new OWS.

The amount of free product that accumulated in the product holding tank of the GWTS was estimated to be 27 gallons during the second quarter 2016. Ten gallons of free product were hand bailed from GMW-O-12 during the second quarter 2016. Recovered free product was hauled away and disposed of at Kinder Morgan-approved disposal facilities as described in the Waste Hauling section of this report.

## Routine Effluent Monitoring

Effluent water samples were collected pursuant to the Waste Discharge Requirements (WDRs) under Order No. R4-2011-0095. Samples were collected at the Order-designated monitoring point EFF-001 (Remediation System Effluent). Samples were transported to Asset Laboratories (formerly Advanced Technology Laboratories) in Las Vegas, Nevada, for analysis. Asset Laboratories is certified by the National Environmental Laboratory Accreditation Program and the California Department of Public Health Environmental Laboratory Accreditation Program. The samples were analyzed in accordance with current U.S. Environmental Protection Agency (EPA) guidelines or as specified in the WDRs for the site. Analytical results for the monthly and quarterly effluent monitoring are summarized in Table 2. Laboratory analytical reports and chain-of-custody documents are included in Appendix A.

## Summary of Compliance Results

As shown in Tables 1 and 2, the results of the monthly and quarterly effluent monitoring indicate that all discharge limitations were met during the reporting period.

## Waste Hauling

Following is a summary of liquid and solid waste removed from the site during the second quarter 2016.

### Liquids

Approximately 3,900 gallons of flammable liquid waste was removed from the site during the second quarter 2016 by Patriot Environmental Services of 508 East E Street, Wilmington, California 90744. The waste included a mixture of recovered fuel product and water generated from cleaning out the OWS transfer tank, equalization tank, and sump. The waste was transported to Demenno/Kerdoon at 2000 North Alameda Street, Compton, California 90222. Provided below is a summary of quantities removed during each event:

- April 14, 2016 – 2,400 gallons
- June 28, 2016 – 1,500 gallons

Approximately 300 pounds of nonhazardous biosparge condensate water was removed from the site on June 28, 2016, by Patriot Environmental Services. The waste was transported to Demenno/Kerdoon.

### Solids

Approximately 500 pounds of nonhazardous waste solids (treatment system sludge) were removed from the site on April 5, 2016, by Environmental Logistics, Inc., of 140 West Monte Avenue, Bloomington, California 92316. The waste was transported to Filter Recycling Services, Inc., at 180 West Monte Avenue, Bloomington, California 92316.

Approximately 40 pounds of nonhazardous waste solids (rags and gloves) were removed from the site on April 5, 2016, by Environmental Logistics, Inc. The waste was transported to Filter Recycling Services, Inc.

Approximately 60 pounds of nonhazardous waste solids (empty rusted steel drums) were removed from the site on April 5, 2016, by Environmental Logistics, Inc. The waste was transported to Filter Recycling Services, Inc.

Approximately 300 pounds of non-Resource Conservation and Recovery Act (RCRA) hazardous waste solids (bag filters) were removed from the site on April 5, 2016, by Environmental Logistics, Inc. The waste was transported to Filter Recycling Services, Inc.

Approximately 250 pounds of nonhazardous waste solids (bag filters) were removed from the site on June 17, 2016, by Environmental Logistics, Inc. The waste was transported to Filter Recycling Services, Inc.

Approximately 300 pounds of non-RCRA hazardous waste solids (bag filters) were removed from the site on June 17, 2016, by Environmental Logistics, Inc. The waste was transported to Filter Recycling Services, Inc.

Copies of the waste manifests are included in Appendix B.

Should you require any further information, please contact me at (714) 435-6255.

Regards,  
CH2M HILL Engineers, Inc.



Vidal Cortes  
Project Engineer

Attachments:

Table 1 – Effluent Flow Rate Measurements, Second Quarter 2016

Table 2 – NPDES Effluent Monitoring, Second Quarter 2016

Appendix A – Laboratory Analytical Reports and Chain-of-Custody Documents

Appendix B – Waste Manifests

Tables

**Table 1. Effluent Flow Rate Measurements, Second Quarter 2016***SFPP Norwalk Pump Station, Norwalk, California*

Date	Average Flow Rate (gpd)
	(Maximum Daily Discharge Limit = 150,000 gpd <sup>a</sup> )
04/01/16	10,861
04/02/16	11,029
04/03/16	11,052
04/04/16	10,988
04/05/16	7,788
04/06/16	0
04/07/16	0
04/08/16	0
04/09/16	0
04/10/16	0
04/11/16	0
04/12/16	0
04/13/16	0
04/14/16	2,432
04/15/16	6,447
04/16/16	6,484
04/17/16	6,395
04/18/16	4,708
04/19/16	5,579
04/20/16	4,913
04/21/16	7,625
04/22/16	11,749
04/23/16	11,596
04/24/16	8,400
04/25/16	7,320
04/26/16	11,130
04/27/16	12,129
04/28/16	12,037
04/29/16	12,008
04/30/16	9,336
05/01/16	9,544
05/02/16	9,952
05/03/16	9,803
05/04/16	10,316
05/05/16	9,916
05/06/16	10,104
05/07/16	10,225
05/08/16	10,392
05/09/16	10,627
05/10/16	11,707
05/11/16	13,519
05/12/16	13,472
05/13/16	15,410
05/14/16	12,020
05/15/16	11,071
05/16/16	10,697
05/17/16	10,115
05/18/16	6,101
05/19/16	3,580
05/20/16	13,260
05/21/16	10,755
05/22/16	9,658
05/23/16	9,807
05/24/16	12,853
05/25/16	18,559
05/26/16	16,844
05/27/16	16,707
05/28/16	15,821

**Table 1. Effluent Flow Rate Measurements, Second Quarter 2016**

*SFPP Norwalk Pump Station, Norwalk, California*

<b>Date</b>	<b>Average Flow Rate (gpd) (Maximum Daily Discharge Limit = 150,000 gpd<sup>a</sup>)</b>
05/29/16	15,533
05/30/16	15,813
05/31/16	15,886
06/01/16	15,953
06/02/16	14,869
06/03/16	15,080
06/04/16	12,529
06/05/16	7,024
06/06/16	15,652
06/07/16	15,622
06/08/16	14,329
06/09/16	10,059
06/10/16	16,478
06/11/16	16,538
06/12/16	16,536
06/13/16	16,372
06/14/16	15,008
06/15/16	10,303
06/16/16	10,143
06/17/16	10,975
06/18/16	4,472
06/19/16	9,888
06/20/16	9,885
06/21/16	10,115
06/22/16	10,510
06/23/16	10,346
06/24/16	5,829
06/25/16	11
06/26/16	5
06/27/16	12
06/28/16	4
06/29/16	8
06/30/16	5

Notes:

<sup>a</sup> California Regional Water Quality Control Board Waste Discharge Requirements

gpd = gallons per day

**Table 2. NPDES Effluent Monitoring, Second Quarter 2016**

*SFPD Norwalk Pump Station, Norwalk, California*

Analyte	Sampling Frequency	Analytical Method	Units	MDL <sup>c</sup>	RL <sup>c</sup>	ML <sup>a</sup>	4/5/2016	5/3/2016	6/14/2016	6/24/2016	Discharge Limits <sup>b</sup>	
											Monthly Average	Daily Maximum
Temperature	Monthly	--	°F	--	--	NE	79.8	73.0	--	77.4	--	86
Oil and Grease	Monthly	EPA 1664A	mg/L	0.76	5	NE	0.71 J	<0.76	<0.68	--	10	15
TPH as Gasoline (C4-C12)	Monthly	EPA 8015B	µg/L	16	50	NE	39 J	32 J	40 J	--	--	--
TPH as Diesel (C13-C22)	Monthly	EPA 8015B	µg/L	16	26	NE	<15	<16	<16	--	--	--
TPH as Oil (C23+)	Monthly	EPA 8015B	µg/L	14	26	NE	<14	26	24 J	--	--	--
Total TPH	Monthly	EPA 8015B	µg/L	16	50	NE	39 J	58	64	--	NE	100
Settleable Solids	Monthly	SM 2540F	mL/L/hr	0.091	0.091	NE	<0.091	<0.088	<0.090	--	0.1	0.3
Total Suspended Solids	Monthly	SM 2540D	mg/L	10	10	NE	<10	<10	<10	--	50	75
Phenolics	Monthly	EPA 420.4	µg/L	10	50	50	<10	19 J	<10	--	300	NE
Benzene	Monthly	EPA 8260B	µg/L	0.036	1.0	2.0	<0.036	<0.036	<0.036	--	1	NE
1,1-Dichloroethane	Monthly	EPA 8260B	µg/L	0.022	0.50	1.0	<0.022	<0.022	<0.022	--	5	NE
1,2-Dichloroethane	Monthly	EPA 8260B	µg/L	0.064	0.50	2.0	<0.064	<0.064	<0.064	--	0.5	NE
Ethylbenzene	Monthly	EPA 8260B	µg/L	0.036	1.0	2.0	<0.036	<0.036	<0.036	--	10	NE
Toluene	Monthly	EPA 8260B	µg/L	0.042	2.0	2.0	<0.042	<0.042	<0.042	--	10	NE
Methyl tertiary butyl ether	Monthly	EPA 8260B	µg/L	0.062	1.0	NE	<0.062	<0.062	<0.062	--	NE	5.0
Tertiary butyl alcohol	Monthly	EPA 8260B	µg/L	0.30	5.0	NE	<0.30	<0.30	<0.30	--	NE	12
Total Xylenes	Monthly	EPA 8260B	µg/L	1.5	2.0	NE	<1.5	<1.5	<1.5	--	10	NE
Copper (total recoverable) (dry weather)	Monthly	EPA 200.8	µg/L	0.26	0.50	0.5	<0.26	<0.26	<0.26	--	16	33
Copper (total recoverable) (wet weather)	Monthly	EPA 200.8	µg/L	0.26	0.50	0.5	<0.26	<0.26	<0.26	--	13	27
Lead (total recoverable) (dry weather)	Monthly	EPA 200.8	µg/L	0.053	0.50	0.5	<0.053	<0.053	<0.053	--	8.2	15
Lead (total recoverable) (wet weather)	Monthly	EPA 200.8	µg/L	0.053	0.50	0.5	<0.053	<0.053	<0.053	--	34	106
Mercury (total recoverable)	Monthly	EPA 245.1	µg/L	0.018	0.050	0.2	<0.018	<0.018	<0.018	--	0.051	0.14
Selenium (total recoverable)	Monthly	EPA 200.8	µg/L	0.070	0.50	2.0	<0.070	<0.070	0.10 J	--	3.4	9.2
Thallium (total recoverable)	Monthly	EPA 200.8	µg/L	0.034	0.50	1.0	0.037 J	<0.034	0.81	--	6.3	13
Zinc (total recoverable) (wet weather) <sup>d</sup>	Monthly	EPA 200.8	µg/L	0.039	10	1.0	0.91 J	<0.039	<0.039	--	79	158
Chromium VI	Monthly	EPA 7199	µg/L	0.066	0.20	0.5	<0.015	<0.066	<0.066	--	8.1	16
pH	Quarterly	--	s.u.	--	--	NE	--	7.0	--	--	--	6.5/8.5
Ammonia Nitrogen (as N)	Quarterly	SM 4500 NH3C	mg/L	0.030	0.13	NE	--	<0.030	--	--	NE	NE
Di-isopropyl Ether	Quarterly	EPA 8260B	µg/L	0.017	1.0	NE	--	<0.017	--	--	NE	NE
Methylene Blue Active Substances	Quarterly	EPA 425.1	mg/L	0.015	0.10	NE	--	<0.015	--	--	NE	NE
Tert-amyl-methyl Ether	Quarterly	EPA 8260B	µg/L	0.039	1.0	NE	--	<0.039	--	--	NE	NE
Turbidity	Quarterly	SM 2130B	NTU	0.10	0.10	NE	--	0.18	--	--	50	75
Methyl ethyl ketone	Quarterly	EPA 8260B	µg/L	0.48	10	NE	--	<0.48	--	--	50	NE
Other Priority Pollutants	Quarterly <sup>e</sup>	--	--	--	--	--	--	--	--	--	NE	NE

Notes:

<sup>a</sup> ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. It is also the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.

<sup>b</sup> California Regional Water Quality Control Board Waste Discharge Requirements (WDRs).

<sup>c</sup> The highest MDL and RL during this reporting period are shown.

<sup>d</sup> There are no dry weather limitations for zinc.

<sup>e</sup> Effluent monitoring will occur quarterly for the first 2 years after the Order is adopted. After the first 2 years, effluent will be monitored once per year.

-- = not measured or not analyzed

< = not detected above the MDL

° F = degrees Fahrenheit

µg/L = micrograms per liter

J = detected at a concentration below the RL and above the MDL.

Reported value is estimated.

MDL = laboratory method detection limit

mg/L = milligrams per liter

ML = minimum level. See note a.

mL/L/hr = milliliters per liter per hour

NE = not established

NPDES = National Pollutant Discharge Elimination System

NTU = nephelometric turbidity unit(s)

RL = reporting limit

s.u. = standard unit(s)

TPH = total petroleum hydrocarbons



Appendix A  
Laboratory Analytical Reports and  
Chain-of-Custody Documents

# Appendix B

## Waste Manifests