

Norwalk Tank Farm Update

Presented to the Norwalk Tank Farm
Restoration Advisory Board

On behalf of KMEP

February 7, 2013

Presentation Overview

- KMEP Update
 - Remediation Operations Update
 - Additional Assessment Update
 - Soil Cleanup Goals
 - Conceptual Site Model
 - Five -Year Action Plan Progress Report
 - Planned Activities

Remediation Operations Update

- Objectives
 - Contaminant Mass Containment
 - Contaminant Mass Removal
- South-Central and Southeast Areas
 - Soil Vapor Extraction (SVE) System
 - Groundwater Extraction (GWE) System
 - Total Fluids Extraction (TFE) System
 - Free product
 - Groundwater
- West Site Barrier
 - Groundwater Extraction
 - Discontinued August 2008
 - Shut-down based on low concentrations of MTBE and 1,2-DCA
 - Currently monitoring TBA and other constituents

3

Remediation Systems

- South-Central Area
 - 18 TFE wells (product and groundwater)
 - 24 onsite and 6 off-site SVE wells (most collocated with TFE wells)
 - 2 GWE Wells
- Southeastern Area (24-inch Block Valve Area)
 - 3 TFE wells (GMW-O-15, GMW-O-18, GMW-36)
 - 3 SVE wells (both collocated with TFE wells)
 - 2 GWE Wells (GMW-SF-9, GMW-SF-10)
- Treatment and Discharge
 - SVE Vapors
 - Treatment – Thermal catalytic oxidizer (catox)
 - Discharge – Atmosphere under SCAQMD Permit
 - TFE Liquids
 - Oil/Water Separator – Free product recycled offsite
 - Groundwater Treatment – Liquid-phase GAC, Fluidized Bed Bioreactors (FBBRs) for fuel oxygenates (MTBE, TBA, etc.)
 - Groundwater Discharge – Coyote Creek under NPDES permit

4

Remediation Systems

- Operations & Maintenance Activities
 - Weekly Inspection and Maintenance of SVE, TFE, and TBA treatment systems
 - Weekly Data Collection
 - Vapor flow rate, vacuum, groundwater extraction rates, hours of operations, and other system parameters
 - Monthly Pump Inspections
 - Measurement of Individual Well Vapor Concentrations
 - Collection and Analysis of System Influent and Effluent Vapor and Groundwater Samples
 - Gauging of Select Remediation Wells

5

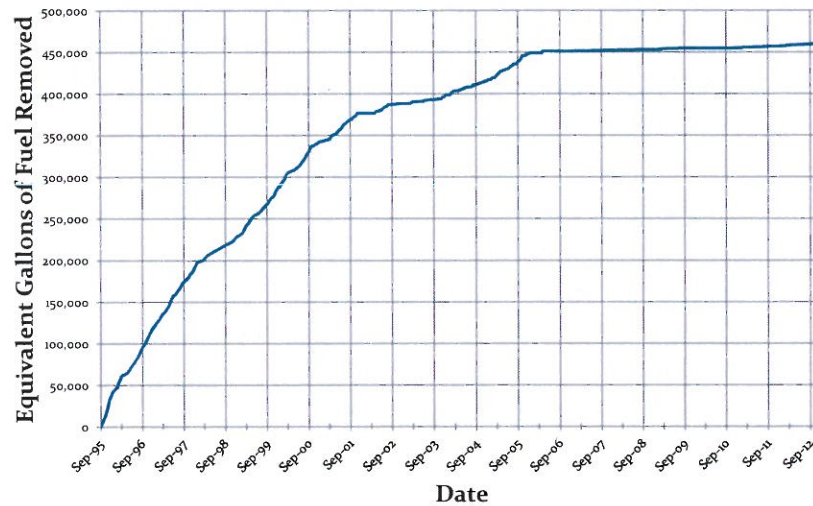
SVE System Operations Summary

- Equivalent Fuel Treated
 - Based on weekly monitoring of influent vapor concentration, vapor extraction flow rate, and hours of operation.
 - Pounds / 6.6 lbs/gal = gallons
 - 3rd Quarter 2012 – 736 gallons (4,856 pounds)
 - 4th Quarter 2012 – 956 gallons (6,312 pounds)
 - Since Second Addendum – 8,701 gallons (57,432 pounds)
 - Since 1995 – Approx. 460,475 gallons (3 million pounds)

6

SVE System Operations Summary

Cumulative Fuel Removed by Vapor Extraction To Date



7

TFE/GWE System Operations Summary

- Groundwater Extracted
 - 3rd Quarter 2012
 - South-Central and Southeast Areas -1,997,728 gallons
 - West Side Barrier - none (shutdown in third quarter 2008)
 - 4th Quarter 2012
 - South-Central and Southeast Areas 2,012,805 gallons
 - West Side Barrier - none (shutdown in third quarter 2008)
 - Since 1995
 - South-Central and Southeast Areas- 54.6 million gallons
 - West Side Barrier - 26.9 million gallons

8

TFE/GWE System Operations Summary

- Mass of TPH removed in Groundwater Extracted
 - 3rd Quarter 2012- 13 gallons (84 pounds)
 - 4th Quarter 2012- 13 gallons (87 pounds)
 - Since implementing Second Addendum
 - 290 gallons (1,917 pounds)

9

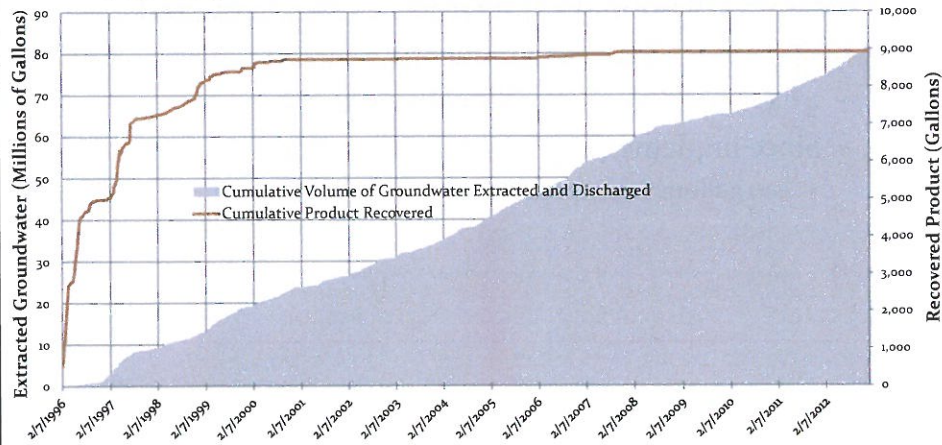
TFE System Operations Summary

- Free Product Extracted
 - 3rd and 4th Quarter 2012
 - Free product has generally decreased since implementing the Second Addendum
 - Volume of free product recovered is small and emulsified
 - Free product not observed to accumulate in the product holding tank.
 - Free product not estimated for 3rd and 4th Quarter 2012
 - Since 1995 - 8,917 gallons

10

TFE System Operations Summary

Summary of Extracted Groundwater and Recovered Product



11

Remediation System Operations Summary

- SVE System
 - 3rd Quarter 2012
 - Operated 48% of time
 - Operated 63% of time (excluding planned shutdown for offsite soil vapor sampling)
 - 4th Quarter 2012
 - Operated 85% of time
 - Operated 92% of time (excluding planned shutdown for groundwater monitoring)
- TFE/GWE System
 - 3rd Quarter 2012
 - Operated 89% of time
 - 4th Quarter 2012
 - Operated 86% of time
 - Operated 94% of time (excluding planned shutdown for groundwater monitoring)

12

Remediation System Downtime

- SVE System
 - Groundwater monitoring activities
 - Routine maintenance activities
 - Drain water condensate from manifold
 - Faulty wire that provides power to SVE system
 - Issues with the modutrol motor, which controls the amount of gas used by the SVE
 - Soil vapor sampling at southern offsite and southeastern areas
- TFE/GWE System
 - Groundwater monitoring activities
 - Carbon change outs
 - Blown fuse on air compressor
 - High level alarms for transfer tank
 - Changed bag filters, cleaned bag filter housing, backwash LGAC vessels
 - Plugging of polishing LGAC vessels due to formation of precipitates

13

Remediation System Upgrades

- SVE System
 - Replacement of temperature controllers, motor starter, and SVE sight glass
 - Replacement of modutrol motor
 - Installation of lights around control panel
 - Conducted video survey of horizontal wells HW-1 and HW-2 to confirm integrity
- TFE/GWE system
 - Raised height of containment pad equipment
 - Relocated transfer tank near former air stripper area
 - Rerouted conveyance line from sump to OWS
 - Installed backwash assembly for the polishing LGAC vessels
 - Installed an acid addition system in the influent sumps and the effluent tanks of the two FBBRs
 - Installed emergency stop button and lights around control panel
 - Installed 6-bag filter housing in parallel with existing bag filter housing to extend life of bag filters. Also installed 2-bag filter housing downstream of the FBBRs

14

Preventative Maintenance

- Check pump operation – monthly
- Pump inspection/cleaning/maintenance - ongoing
- Bag filter replacements – twice per week minimum
- Inspection and minor repairs of SVE wells
- Backwashing of lead and polishing LGAC vessels
- Pre-catalyst back pressure monitoring – Weekly
 - Monitor for particulate buildup on catalyst cells
- Sampling between LGAC vessels – bi-weekly
 - Monitor for breakthrough between carbon vessels; concentrations alert technicians when a change out is required
 - Carbon change outs in lead and polishing LGAC vessels

15

Preventative Maintenance

- System-specific preventative maintenance schedule for each of the other components of the remediation system
 - South-central System
 - Southeastern System
- Example system-specific preventative maintenance activities
 - Check/inspect valves, blowers, chemical pumps, level switches, hoses, and catox flame arrestor
 - Clean filters (various types), flow sensors, valves, transfer pumps, and catox catalyst
 - Change oil and air filters in various equipment
 - Check/replace belts and hoses on various equipment
 - Maintain pneumatic pumps
 - Clean oil/water separator, sump, and equalization tank
 - Drain and/or pressure wash holding tanks

16

Planned Remediation Activities

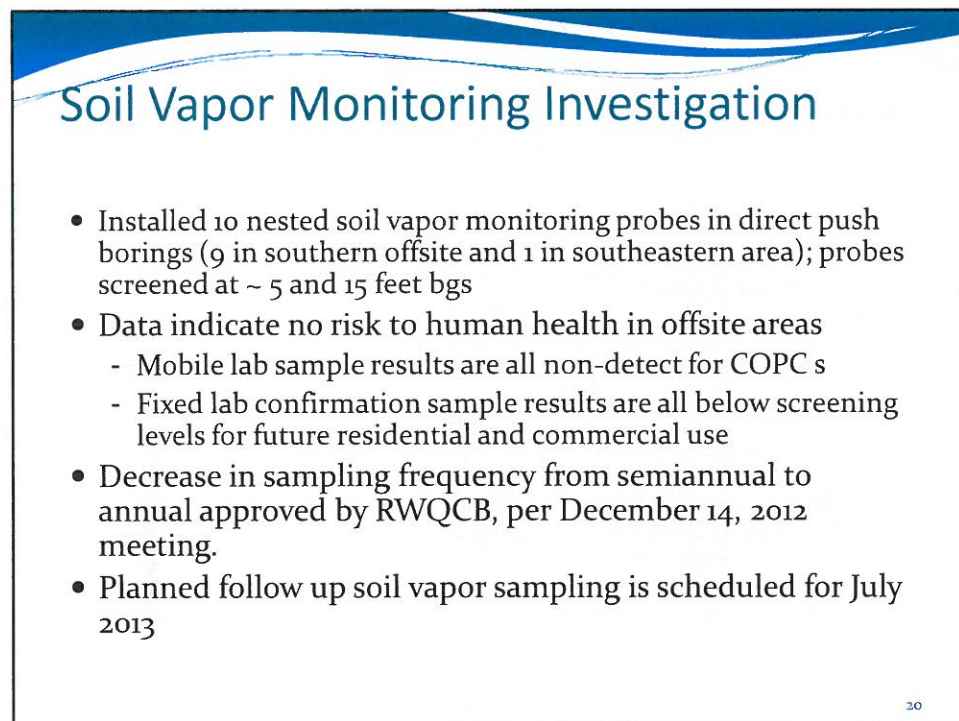
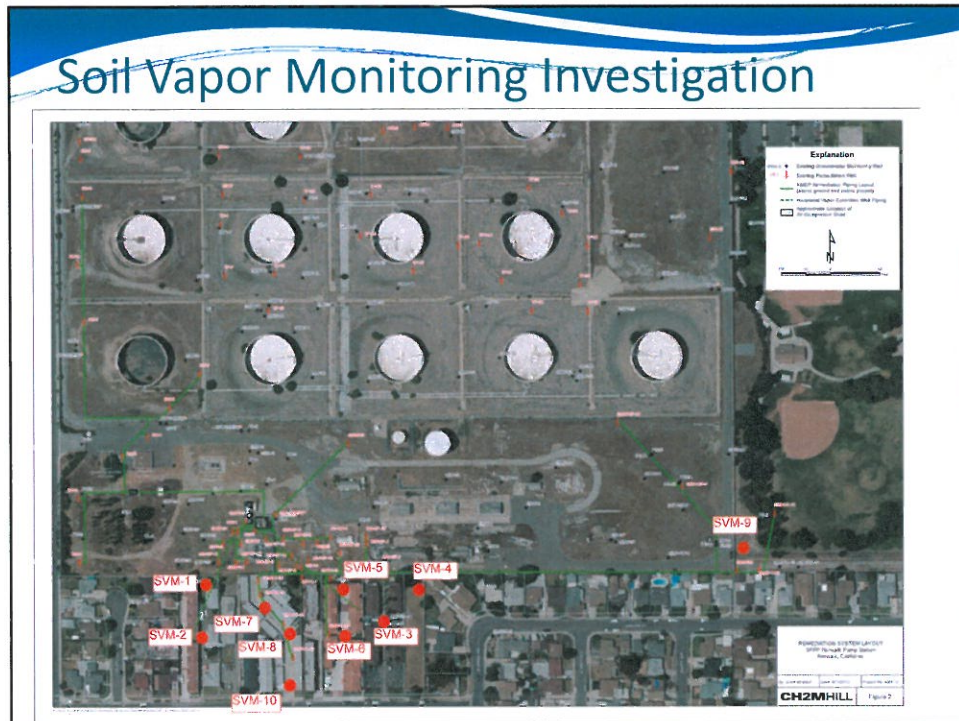
- Continue focusing remedial efforts on South-central and Southeastern areas
 - Continue operating TFE, GWE, and SVE systems
 - Continue system maintenance, inspections, and data collection on weekly basis
 - Continue pumping onsite southeastern area extraction well GMW-SF-9 to hydraulically contain TBA in that area
- Monitor concentrations of 1,2-DCA, MTBE, and TBA in western area and restart WSB if necessary
- Perform mechanical well rehabilitation of select offsite extraction wells
- Investigate use of sand filter or cartridge filter to remove particulates from influent and reduce frequency of shutdowns due to clogged bag filters

17

Additional Assessments

- Southeastern 24-Inch Block Valve Area
 - Field investigation complete in January 2011
 - Results presented in August 11, 2011 RAB and report prepared by CH2M HILL (CH2M HILL, August 2011)
- Vertical Assessment of LNAPL in Soil
 - Field investigation complete in October 2011
 - Results presented in February 9, 2012 RAB and report prepared by CH2M HILL (CH2M HILL, February 2012)
- South-Central Residential Area Vapor Study
 - Soil vapor probes installed and sampled in June/July 2012
 - Draft results presented in August 9, 2012 RAB
 - Report prepared by CH2M HILL (CH2M HILL, November 2012)
 - Follow up sampling scheduled for July 2013
- Soil Boring Investigation
 - Field investigation completed in October 2012
 - Results presented in report prepared by CH2M HILL (CH2M HILL, December 2012)

18



Soil Boring Investigation

- Objectives
 - Confirm vertical extent of impacted soil in the vadose zone at known release areas and areas with elevated concentrations of dissolved phase hydrocarbons
 - Provide permanent groundwater monitoring point approximately 100 feet northeast of monitoring well GMW-O-18 to better define downgradient extent of dissolved phase hydrocarbons in southeastern 24-inch block valve area
 - Provide additional soil data for evaluation of risk-based clean-up goals for TPH, BTEX, and other VOCs

21

Soil Boring Investigation

- Scope of Work
 - Advancement of 9 direct-push soil borings (7 borings in south-central area, 2 borings in southeastern area) to top of water table (~30 feet)
 - Soil logging and PID screening
 - Discrete-depth soil sampling
 - Analyze for VOCs and TPH
 - Advancement of 1 soil boring to top of Bellflower aquitard (~ 50 feet) in southeastern area and convert to shallow monitoring well
 - Soil logging and PID screening
 - Discrete-depth soil sampling
 - Analyze for VOCs and TPH

22

Soil Boring Investigation



23

Soil Analytical Results

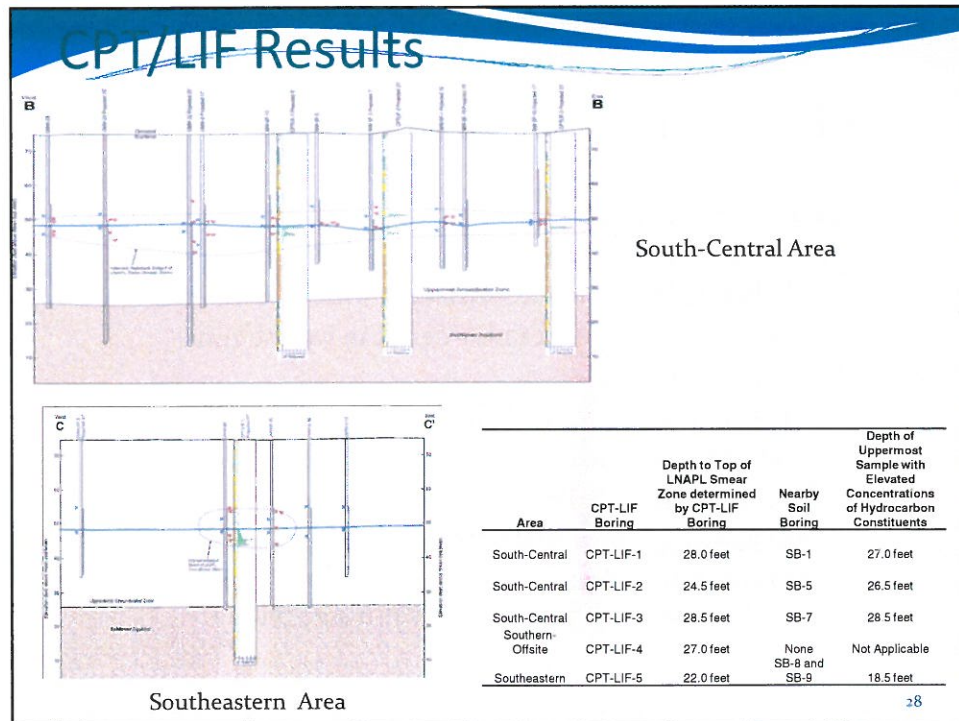
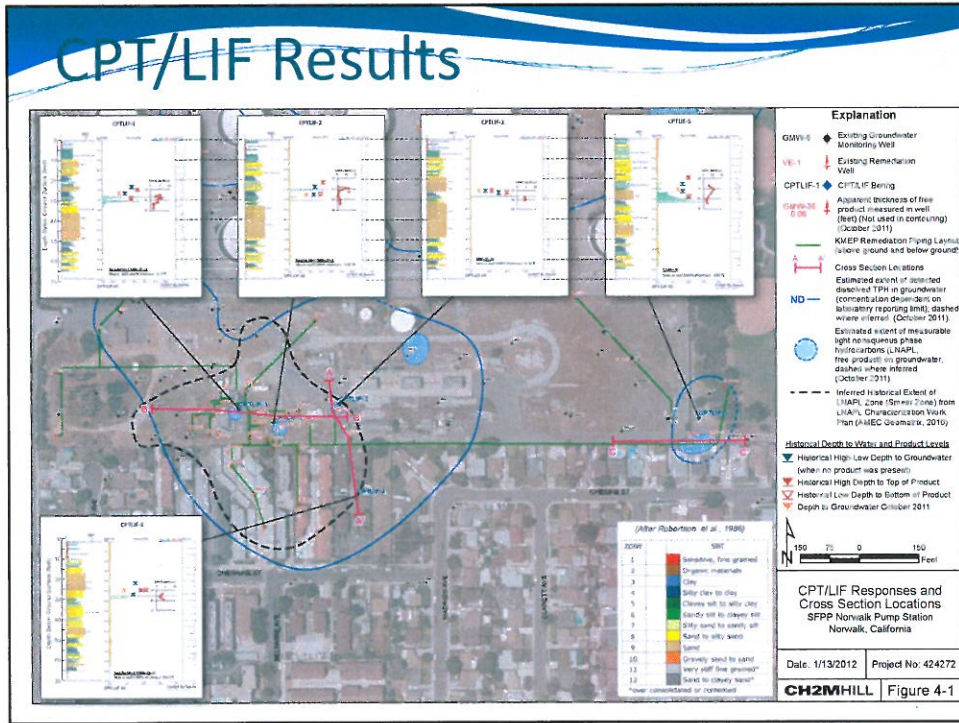
General Area	Sample Location	Zone	Sample Depth Interval (feet bgs)	TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TBA
				(mg/kg)	(mg/kg)	(mg/kg)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
South-Central Area	SB-1	Vadose	7.7-5	<1.1	<12	<12	<5.2	<6.2	<6.2	<5.2	<5.2	<26
			15.5-14	<1.2	12	53	<6.7	<6.7	<6.7	<6.7	<6.7	<33
			18.5-19	<1.1	<10	<10	<5.3	<5.3	<5.3	<5.3	<5.3	<27
		24.24.5	<1.2	<13	<13	<6.2	<6.2	<6.2	<6.2	<6.2	<31	
		Smear	27.27.5	17	25	<12	2,200	1,400	380	1,500	<5.6	<28
			28.28.5	23,000	4,000	100	240,000	<6,400	350,000	<6,400	<6,400	<32,000
	4.5-5		<2.0	<12	<12	<7.3	<7.3	<7.3	<7.3	<7.3	<37	
	SB-2	Vadose	9.5-9	<1.6	<10	<10	<6.2	<6.2	<6.2	<6.2	<6.2	<41
			14.14.5	<1.4	<10	<10	<5.0	<6.1	<6.3	<5.3	<5.3	<26
			14.14.5	<1.6	<10	<10	<6.6	<6.6	<6.8	<6.8	<6.8	<34
		15.5-16	<1.7	<10	<10	<6.0	<6.0	<6.0	<6.0	<6.0	<30	
		24.24.5	<1.1	<11	29	<5.1	<5.1	<5.1	<5.1	<5.1	<25	
		Smear	27.27.5	6.1	<12	<12	1,500	280	280	440	73	<37
	28.28.5		25,000	2,500	87	310,000	700,000	370,000	2,000,000	<7,000	<35,000	
	4.5-5		<1.3	<12	<12	<6.7	<6.7	<6.7	<6.7	<6.7	<34	
	SB-3	Vadose	6.5-5	<1.2	<12	<12	<6.1	<6.1	<6.1	<6.1	<6.1	<30
			14.14.5	<1.2	<11	<11	<5.5	<5.5	<5.5	<5.5	<5.5	<28
			17.17.5	<1.3	<11	<11	<5.7	<5.7	<5.7	<5.7	<5.7	<29
		Smear	22.5-23	<1.3	<11	<11	<5.9	<5.9	<5.9	<5.9	<5.9	<29
			26.5-27	12	81	<13	540	3,300	480	2,200	12	<29
			27.5-28	8.8	<13	<13	1,300	680	350	830	74	240
	SB-4	Vadose	2.5-3	<1.3	<12	<12	<6.0	<6.0	<6.0	<6.0	<6.0	<30
			7.7-5	<2.1	<11	<11	<5.5	<5.5	<5.5	<5.5	<5.5	<26
			14.14.5	<1.5	<10	<10	<5.6	<5.6	<5.6	<5.6	<5.6	<28
		Smear	15.5-16	<1.2	<13	<13	<7.2	<7.2	<7.2	<7.2	<7.2	<36
			24.24.5	2,200	220	<13	<3,100	<3,100	29,000	100,000	<5,100	<16,000
			25.5-26	15	1,200	29	850	5,500	800	3,900	<5.9	<30
	SB-5	Vadose	26.5-27	11,000	19,000	310	110,000	180,000	140,000	750,000	<1,100	<18,000
			0.0-5	<1.5	17	110	<6.7	<6.7	<6.7	<6.7	<6.7	<33
			5.5-6	<1.6	<15	<15	<5.8	<5.8	<5.8	<5.8	<5.8	<44
		Smear	16.14.5	<1.2	<12	<12	<6.0	<6.0	<6.0	<6.0	<6.0	<30
			14.14.5	<1.9	<12	<12	<6.9	<6.9	<6.9	<6.9	<6.9	<34
			17.17.5	<1.3	<10	<10	<7.5	<7.5	<7.5	<7.5	<7.5	<37
	SB-6	Vadose	22.5-23	<1.3	30	<12	<6.7	<6.7	<6.7	<6.7	<6.7	<34
			26.5-27	39	<13	<13	2,900	8,600	940	5,800	1,800	3,800
			28.5-29	280	13	<13	8,900	18,000	3,800	20,000	8,200	12,000
		Smear	2.5-3	<1.1	<12	53	<5.3	<5.3	<5.3	<5.3	<5.3	<26
			8.8-5	<1.1	<12	<12	<5.2	<5.2	<5.2	<5.2	<5.2	<26
			17.17.5	<1.5	<13	<13	<7.1	<7.1	<7.1	<7.1	<7.1	<36
	SB-8	Vadose	17.17.5	<1.5	<11	<11	<5.1	<5.1	<5.1	<5.1	<5.1	<24
			23.23.5	<1.2	<13	<13	<6.9	<6.9	<6.9	<6.9	<6.9	<34
			25.5-26	12	2,500	59	1,100	6,300	710	4,200	<5.7	<28
		Smear	27.27.5	3,000	520	14	18,000	170,000	40,000	220,000	<2,600	<13,000
			28.5-29	8,100	13	<13	51,000	280,000	72,000	380,000	<3,200	<19,000
			28.5-29	170	86	<13	5,000	15,000	2,400	14,000	<270	<1,400

Soil Analytical Results

General Area	Sample Location	Zone	Sample Depth Interval (feet bgs)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-o (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	TBA (µg/kg)
South-Central Area	SB-7	Vadose	2-5-3	<13	<12	<12	<6.2	<6.2	<6.2	<6.2	<6.2	<31
			7-7-5	<10	<11	<11	<5.4	<5.4	<5.4	<5.4	<5.4	<27
			14-14-5	<1.1	<11	<11	<5.8	<5.8	<5.8	<5.8	<5.8	<29
			18-5-19	<0.96	<10	<10	<5.2	<5.2	<5.2	<5.2	<5.2	<26
			23-23-5	<1.2	<10	<10	<5.6	<5.6	<5.6	<5.6	<5.6	<28
			28-5-29	7.7	<13	<13	270	160	970	3,900	<5.2	<41
		Smear	4-5-5	<0.95	<10	<10	<5.4	<5.4	<5.4	<5.4	<5.4	<27
Southeastern Area	SB-8	Vadose	9-9-5	<1.1	<12	<12	<5.4	<5.4	<5.4	<5.4	<5.4	<27
			14-14-5	<1.2	<11	<11	<5.9	<5.9	<5.9	<5.9	<5.9	<29
			14-14-5	<1.2	<10	<10	<4.7	<4.7	<4.7	<4.7	<4.7	<23
			19-19-5	280	780	21	1,500	28,000	5,700	45,000	390	<1,200
			21-21-5	2.0	<10	<10	72	1,900	110	2,400	110	<33
		Smear	22-5-23	2,200	1,400	38	9,000	160,000	51,000	330,000	<3,200	<16,000
			24-24-5	9,300	680	18	120,000	810,000	170,000	1,000,000	17,000	<3,200
			25-5-26	1,700	1,800	41	19,000	120,000	25,000	160,000	50,000	<3,200
			27-27-5	1,300	1,580	39	3,100	57,000	19,000	130,000	1,400	<3,000
			27-27-5	1,800	1,300	34	5,400	100,000	35,000	230,000	2,300	<7,100
	SB-9	Vadose	4-5-5	<1.2	<10	<10	<6.0	<6.0	<6.0	<6.0	<6.0	<30
			7-7-5	<1.1	<11	<11	<5.2	<5.2	<5.2	<5.2	<5.2	<26
			12-5-13	<0.96	<11	<11	<5.7	<5.7	<5.7	<5.7	<5.7	<28
			14-14-5	<1.2	<10	<10	<5.4	<5.4	<5.4	<5.4	<5.4	<27
			18-5-19	5,300	4,400	130	25,000	390,000	120,000	710,000	<5,400	<27,000
		Smear	21-5-22	24,000	2,400	69	260,000	2,000,000	410,000	2,800,000	53,000	<150,000
			21-5-22	1,600	1,800	50	18,000	130,000	27,000	180,000	16,000	<12,000
			23-23-5	9,000	2,600	63	94,000	630,000	160,000	980,000	30,000	<90,000
			25-5-26	72	160	<13	6,100	11,000	760	4,800	44,000	3,100
			27-27-5	2,100	1,200	34	7,700	100,000	36,000	230,000	3,800	<15,000
GMW-O-24	Vadose	2-5-3	<1.1	<10	<10	<5.5	<5.5	<5.5	<5.5	<5.5	<27	
		9-9-5	<1.1	<11	<11	<8.1	<8.1	<8.1	<8.1	<8.1	<41	
		14-14-5	<1.1	<11	<11	<5.3	<5.3	<5.3	<5.3	<5.3	<27	
		19-19-5	<1.2	<10	<10	<6.0	<6.0	<6.0	<6.0	<6.0	<30	
	Groundwater	22-22-5	<1.2	<12	<12	<6.1	<6.1	<6.1	<6.1	<6.1	<30	
		27-27-5	<1.0	<12	<12	<5.4	<5.4	<5.4	<5.4	<5.4	<27	
		27-27-5	<0.91	<12	<12	<5.4	<5.4	<5.4	<5.4	<5.4	<27	
		32-5-33	<1.1	<13	<13	<5.7	<5.7	<5.7	<5.7	<5.7	<29	
38-5-39	<1.1	<13	<13	<5.5	<5.5	<5.5	<5.5	<5.5	<28			
42-5-43	<1.3	<13	<13	<6.5	<6.5	<6.5	<6.5	<6.5	<32			
47-5-48	<1.2	<13	<13	<6.2	<6.2	<6.2	<6.2	<6.2	<31			

Soil Boring Investigation

- South-central Area
 - Hydrocarbon impacts generally limited to smear zone (below 25 feet bgs) and consistent with CPT/LIF data
 - Diesel fuel release area non-detect in vadose zone
- Southeastern Area
 - Hydrocarbon impacts limited to smear zone (below 18 feet bgs) and consistent with CPT/LIF data
 - Soil impacts at GMW-O-24 were non-detect
 - MTBE was present in GMW-O-24 groundwater at a concentration near the RL (~ 1 ppb), confirming northern extent of the southeastern area plume



Soil Cleanup Goals

- RWQCB requested soil cleanup goals from DLA Energy and SFPP
 - Per discussions with DLA Energy
 - October 26, 2012 letter to SFPP
- DLA Energy calculated soil cleanup goals
 - Calculated as prescribed in RWQCB's May 1996, *Interim Site Assessment & Cleanup Guidebook*
 - Calculated for petroleum fuel hydrocarbon compounds and other VOCs
 - Submitted in letter to RWQCB (Parsons, March 14, 2012)
- RWQCB reviewed and concurs with DLA Energy's soil cleanup goals (July 12, 2012 letter)
- SFPP reviewed DLA Energy goals and calculations
- SFPP concurs with following conditions (CH2M HILL, January 14, 2013 letter):
 - Depth to Groundwater – Cleanup goals based on depth to water of 25 feet. Historical depth to water and product varies, resulting in top of smear zone at ~18 feet bgs in some areas. Therefore, cleanup goals from 15 to 25 feet would not apply.
 - Constituents of Concern – Not all COCs detected at SFPP areas
 - TPH Quantification – SFPP calculates TPH-d as C13-C22, DLA Energy different. TPH-JP5 would not apply to SFPP
 - Additional Risk Assessment – SFPP reserves right to perform additional site-specific risk assessments as deemed necessary based on future site conditions and data collected as part of ongoing investigation and remediation activities

29

Conceptual Site Model

- RWQCB requested Conceptual Site Model (CSM)
 - Soil CSM – October 26, 2012 letter to SFPP
 - LNAPL CSM – December 5, 2012 email to SFPP
- Soil CSM requested by RWQCB (October 26, 2012 letter to SFPP)
 - Must address: potential pathways, lateral and vertical extent, and locations of receptors that may be affected by petroleum hydrocarbons
 - Requested Work Plan for additional characterization be prepared if cannot complete soil CSM with existing data
- LNAPL CSM requested by RWQCB (December 5, 2012 email to SFPP)
 - Delineate subsurface hydrocarbons with LNAPL
 - Evaluate current remedy for LNAPL mass removal
 - Develop a corrective action decision framework
 - Follow current ASTM E2531-06, *Standard Guide for Development of Conceptual Site Models and Remediation Strategies for LNAPL Release to the Subsurface* and most current revision
- SFPP preparing integrated CSM
 - Addresses soil/soil vapor/groundwater/LNAPL
 - Will update Preliminary CSM (AMEC, February 13, 2009) with data from additional assessments:
 - Southeastern 24-Inch Block Valve Area (CH2M HILL, August 2011)
 - Vertical Assessment of LNAPL in Soil (CH2M HILL, February 2012)
 - South-Central Residential Area Vapor Study (CH2M HILL, November 2012)
 - Soil Boring Investigation (CH2M HILL, December 2012)
- SFPP will update Remedial Action Plan based on updated CSM

30

Five-Year Action Plan Progress Report

- Second Addendum to Remedial Action Plan
 - Submitted – November 2006
 - Approved – April 2007
 - Remediation system enhancements
 - Expanded the SVE and TFE system into onsite areas where residual LNAPL appeared to remain
 - 5-Year Schedule to Submitting Closure Request
 - August 2012
- Update provided in February 19, 2010 Letter to RAB
 - Revised Schedule to Submitting Closure Request
 - September 2013
- Remediation System Effectiveness Evaluation provided in Report by AMEC (May 14, 2010)

31

Five-Year Action Plan Progress Report

Status	Task	Date Completed or Projected	Second RAP Addendum	
Completed	Receive Approval from RWQCB	April-07	December-06	
	Begin Remediation System Expansion	May-07	--	
	Begin Upgrades to Groundwater Treatment System	August-07	--	
	Complete Remediation System Improvements	December-07	February-07	
	Full-Scale Remediation Startup	January-08	--	
	Begin SVE Rebound Testing	December-08	August-08	
	Submit First Annual Remediation Progress Report	January-09	February-08	
	Submit Second Annual Remediation Progress Report	January-10	--	
	Complete SVE Rebound Testing	As conditions allow	February-09	
	Submit Third Annual Remediation Progress Report	January-11	--	
	Submit Fourth Annual Remediation Progress Report	January-12	--	
	Future	Begin Bioventing Operation	After free product removal	March-09
		Begin Bioventing Rebound Testing	TBD	December-09
		Begin Verification Groundwater Monitoring	January 2010 (ongoing)	June-10
Complete Bioventing Testing		TBD	June-10	
Complete Verification Groundwater Monitoring		When cleanup objectives are met	June-10	
Submit Closure Request to RWQCB		When cleanup objectives are met	August-12	

32

Planned Activities 2013

- Preparation of Conceptual Site Model by Second Quarter 2013
- Conduct planned soil vapor sampling in southern offsite area in July 2013
- Identify best option to facilitate clean up by Second Quarter 2013
 - Air sparging
 - Biosparging (vertical or horizontal)
 - In-situ stripping
 - Injection of chemicals or oxygenated water
 - MNA
- Initiate construction and testing of pilot-scale remediation system in Fourth Quarter 2013 (to include southeastern area)

33

Questions?

34