MEETING MINUTES

Meeting Subject: Former Norwalk Tank Farm Restoration Advisory Board (RAB) Semiannual Meeting	**Meeting Date**: **August 23, 2018** **Meeting Time**: 4:00 p.m. **Meeting Place**: Norwalk Arts & Sports Complex

RAB, PROJECT TEAM, AND OTHER ATTENDEES

RAB Community Members
M. McIntosh (Co-Chair, Meeting Chair)
T. Winkler

Other Members
P. Cho (RWQCB)
S. Defibaugh (KMEP) (Co-Chair)
C. Devier-Heeney (DF-FEE Energy)
M. Garcia (City of Norwalk)
N. Irish (SG/Apex)

Other Attendees
B. Potter (DF FEE Energy)
D. Wincele (DF FEE Energy Contractor)
V. Carino (Jacobs)
C. Gross (GSA)
P. Parmentier (SGI/Apex)
L. Graves (SGI/Apex)
Y. Gallegos (SGI/Apex)
B. Partington (WDR)
J. Gomez (City of Norwalk)
M. Winford (Norwalk Resident)
H. Enciso (Norwalk Youth Soccer League)

Acronyms:
1,2-DCA..... 1,2-dichloroethane
bgs..... below ground surface
BLM ..... Bureau of Land Management
CO_2 ..... carbon dioxide
CFM……cubic feet per minute
DLA..... Defense Logistics Agency
DFSP ..... Defense Fuel Support Point
DF-FEE..... Defense Logistics Agency-Energy
DTSC.....Department of Toxic Substances Control
GSA ..... U.S. General Services Administration
HHRA.....Human Health Risk Assessment
KMEP..... Kinder Morgan Energy Partners
LNAPL ..... light non-aqueous phase liquids
MTBE..... methyl tertiary-butyl ether
NFA ..... No Further Action
O_2..... oxygen
PCE ..... tetrachloroethylene
ppb ..... parts per billion
RAB ..... Restoration Advisory Board
RSLs.....Risk Screening Levels
RTO.....Regenerative Thermal Oxidizer
RWQCB..... Regional Water Quality Control Board
SCFM……..Standard Cubic Feet per Minute
SFPP.....Santa Fe Pacific Pipeline
SGI ..... The Source Group, Inc.
SVE..... soil vapor extraction
TBA..... tert-butyl alcohol
TFE/GWE ..... total fluids extraction/groundwater extraction
TPH..... total petroleum hydrocarbons
ug/L..... micrograms per liter
USAF ..... United States Air Force
VOCs ..... volatile organic compounds
WRD ..... Water Replenishment District of Southern California

MEETING MINUTES

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BACKGROUND

DF-FEE Installation Operations Energy (DF-FEE) Restoration Branch of the Defense Logistics Agency (DLA) and Kinder Morgan Energy Partners (KMEP) are conducting environmental cleanup activities in and surrounding the former Defense Fuel Support Point (DFSP) Norwalk facility, formerly known as the Tank Farm, located at 15306 Norwalk Boulevard, Norwalk, California. The Restoration Advisory Board (RAB) is an advisory committee of local citizens and project members that review and comment on documents relating to the environmental cleanup. All RAB meetings are open to the public and are scheduled semiannually on the fourth Thursday at 4:00 p.m. in the months of February and August unless otherwise voted on by the RAB community membership.

INTRODUCTION Steve Defibaugh, RAB Co-Chair, Meeting Chair

Mary Jane McIntosh, RAB Co-Chair, Meeting Chair, called the meeting to order at 4:13 p.m.
Ms. McIntosh asked for questions and comments on the minutes from the February 22, 2018 RAB meeting. Motion for the second on the approval of the minutes; if there's no questions or comments or concerns, all in favor will say I. Minutes approved.

Attendees introduced themselves.
*Michael Garcia (City of Norwalk) is vice Adriana Figueroa replacement.

GSA Update Chelsey Gross

General Services Administration.GSA is still working with the Air Force, we have received their draft report of access for the property they were getting together a few lost documents and then would submit the final report of access. We also have worked with the Bureau of Land Management (BLM) and have ordered a survey for the remaining 36 acres. We cannot start our disposal process formally until we have the No Further Action (NFA). GSA expects that the Air Force will have their final report of access to us; they are saying August but it's looking more like September. Once we have the final report, it will be formally accepted. We will have the survey and then we can look into doing our federal screening, which is a 30-day screening period for other federal agencies. By then hopefully we will have the NFA so we can move forward with the rest of our screening periods and eventually do public sale.

DLA Update Neil Irish, SGI/Apex

Soil Remediation Project Progress

Mr. Irish gave a brief update on the shallow soil remediation at the Site and closure process. Over the past year 2 years, DLA has completed clean-up of the upper 10 feet of soil across the Tank Farm: 175,000 tons of soil excavated, 77,000 tons reclaimed and approved for backfill. 100,000 tons of soil contaminated with various jet fuels that have been clean and replaced into the ground.

As part of the closure process, it is required that we do soil gas surveys. The objective is to determine if further residual contaminates are present in the soil that could vaporize and be breathed in by surrounding neighbors or someone walking by the Site. These surveys have been completed, data has been analyzed and results are none to very low; the results are below levels which have been approved for residential use. The Human Health Risk screening was completed, and the report submitted and documented.

Eastern portion of the Site which has been gifted to the City has been issued an NFA from RWQCB. Mr. Garcia from the City of Norwalk stated the deed has been recorded as of August 14, 2018. The Western Area report was submitted to the board, pending review. Paul Cho stated there is still one condition left and that the board will be reviewing the report come September, as one of the board members was out on medical leave. This report should take about 60 days to review for comments and/or approval.

Mr. Irish continues to discuss deep soil and groundwater remediation effects which have continued at pace and are starting to accelerate. (Focus on Deep Soil and Light Non-Aqueous Phase Liquid)

- Groundwater Remediation First Half 2018 removed 672,000 gallons of extracted and treated groundwater. 78.4mm gallons of extracted and treated groundwater since April 1996;
- SVE System First Half 2018 removed 9,418 pounds of vapor-phase of hydrocarbons. 2.98mm pounds of vapor-phase hydrocarbon removed since April 1996;
- LNAPL Recovery First Half 2018, 278 gallons have been recovered using the following methods hand bailing, absorbent socks, and automatic pumping. 50,000 gallons of LNAPL have been recovered since April 1996. (LNAPL = light non-aqueous phase liquids).

SVE System is actively operating. The system pulls vapors from the ground using horizontal and vertical wells located on the east and south parts of the Site. Vapor that is being extracted is limited to treatment due to capacity of our system.

Mr. Irish continues to discuss further recovery efforts using a series of vapor extraction horizontal wells located at the Tank Farm (HW-1, HW-5, & HW-7). In the Truck Rack area vapor removal is higher where the deeper horizontal wells are located. LNAPL continues to be recovered in wells TF-18, RTF-18-N, RTF-18-W, and RTF-18NW.

Status of Remediation System

System that has been operating since 1996 is no longer serviceable and a new system was been constructed, awaiting system components to be delivered. Until then, a temporary 300-standard cubic feet per minute (SCFM) gas-fired oxidizer is currently being operated due to increased vapor concentrations.

Lower concentrations from the horizontal wells are being treated at 750 scfm. Wells with higher concentrations are being treated with a mobile gas-fired oxidizer. Due to noise complaints/restrictions we have limited operations to day time only. The system is shut down every evening and left off during the weekends. With the new system pending delivery, we have hopes that it will be a much quitter unit and can operate around the clock.

Pending delivery of the new 3,000 scfm system. Electrical upgrades are required and have been coordinated with Southern California Edison Company. Natural gas services are also required and are in coordination with Southern California Gas Company.

Mr. Garcia asked, “What is the timing of the new unit?”

Mr. Irish stated that delivery is estimated for October and install to take place November 2018.

Mr. Irish shows pictures of the old and new system, explaining that the Government has a program called Defense Reutilization, Marketing Organization which finds a home for older equipment. When showing the new system Mr. Irish pointed out the PD blower and silencer that will contain the sound.

Mr. Irish continues to discuss that over the First Half 2018, we have seen an increase of LNAPL in the wells. While working with RWQCB, there has been much emphasis on extracting as much LNAPL. With the importance of understanding LNAPL, we have done much research to develop a way to enhance the method of recovery of LNAPL. A bench test for Surfactant was completed by taking contaminated soil, adding the surfactant/detergent with hope the LNAPL would be flushed out. However, we also found by adding hot water to the contaminated soil it would work just as well. At this time, we have determined surfactants are not suitable technology for use at this time. We performed a field test to evaluate enhance LNAPL recovery and effectiveness of groundwater remediation. Using vacuum-enhanced LNAPL recovery, bail-down and recharge, and doing a test where you combined LNAPL and groundwater, separating it afterwards.

Mr. Irish shows map of LNAPL recovery over time. There was approximately 10 feet of product on the water table, which has been reduced to <1 foot. Product on Site has been considerably treated and treated well, but we still need to remove the residual from the ground.

Ms. McIntosh asked, "Years ago we utilized a method of an absorbent socks to get out some of the LNAPL, what about revisiting that technology?"

Mr. Irish "We are using those. When you have a well with shine a sock is placed to collect this product, for wells with a few inches we use a long barrel bucket to extract the product and for wells that have greatest thickness we use automatic pumps, extracted placed in the treatment system area, temporarily stored and haul for recycling."

Ms. Winkler "Are you identifying the product you are pulling?"

Mr. Irish "Early on in the project forensics testing was done to identify the different fuels that use to be stored at the Site. The Navy used a fuel called JP4, but then later switched to a slower burning fuel JP5."

Ms. Winkler "Have you identified the LNAPL at GMW-62 and GMW-66?"

Mr. Irish "We will look into what type of fuel was identified and who's' it was."

Ms. McIntosh "A lot of extensive work was done to see if there was a pipeline leak or a leak from a continuous source. So that we do not take up any more time, could you get back to us in an email? If I do remember, it was Jet Fuel."

Mr. Irish "I will do further research and get back to you."

After the soil excavation and treatment, based on the findings in the field and laboratory testing we decided to expand the remediation system;

- 40 new total fluids (LNAPL and groundwater) wells have been installed throughout the tank farm, to enhance the recovery of LNAPL and groundwater;
- 65 new biosparge well to enhance remediation of groundwater;
- 16 new vapor extraction wells to enhance remediation of deeper soils, increasing 4 horizontal VE wells and 50 existing vapor extraction wells;
- Full system operation should start this Fall, November 2018.

Long-Term Stewardship DLA Carol Devier-Heeney

DLA is committed to a long-term stewardship. We have been working with the community through the RAB meetings, also the City and the Air Force. We are continuing that trend. We are focused on our cleanup, and it obvious we have finished up the shallow soil. We're really trying to get aggressive right now, right before we have many other stakeholders. Meaning maybe a developer or potentially more than one. However this western parcel turns out, we have established a framework; a conversation for how we are going to handle the scheduling of sampling our monitoring wells or answer the question as to what happens if the developer needs to move a well. We have established those conversations making it easier to

continue working with whomever is going to come on board, onto those parcels. We are not going anywhere, we will be around for a long time focusing on the deeper soils and groundwater. Il is going to take some time. If you have questions or concerns, feel free to contact me.

Kinder Morgan Update Vladimir Cario

Mr. Carino, provided an update on Kinder Morgan Energy Partners (KMEP)'ss remediation systems operation, completed remediation activities, planned remediation activities, and a summary of the 2018 semi-annual Groundwater Monitoring Report.

During 1st and 2nd^{h} quarter data for all of KMEP's treatment systems onsite, including the soil vapor extraction (SVE), the groundwater extraction (GWE), the total fluid extraction (TFE), and Biosparge systems. These systems are located in the South-Central and Southeast areas.

The SVE and biosparge systems operated at about 83-85%. Shutdown was to facilitated gauging and sampling activities for the first semiannual groundwater sampling event.

Based on weekly monitoring of influent vapor, vapor extraction flow rate, and hours of operations;

- First Quarter 2018 - 1,337 gallons (8,821 pounds)
- Second Quarter 2018 – 733 gallons (4,841 pounds)
- Removal Since 1995 – Approximately 535,299 gallons (3.53 million pounds)

TFE/GWE System performance based on monthly monitoring of influent TPH concentration and volume of extracted groundwater;

- First Quarter 2018 – Groundwater Treated:708,746 gallons; Equivalent Fuel Treated 1.7 gallons (11 pounds)
- Second Quarter 2018 – Groundwater Treated:508,344 gallons; Equivalent Fuel Treated 0.52 gallons (3.4 pounds)
- Removal Since 1995 – South-Central and Southeast Areas 103.8 million gallons; West Side Barrier 26.9 million gallons.

Lower mass removal due to decreased TPH concentration in groundwater influent, likely due to ongoing remediation efforts. No free product extracted during First Half 2018, due to decline in measurable product in extraction wells. Free product since 1995 – 14,426 gallons product extracted.

Southern Area Biosparge System/SVE Upgrade

- A 175-HP Kaeser compressor will be installed in Sep/Oct 2018
- Rotary screw compressor enclosed in a 12-feet by 25-feet transportable container
- The compressor is able to deliver up to 883 cubic feet per minute (CFM) of air.

  Max 600 CFM into BS-01 at the south-central area

  Max 240 CFM into BS-02 at the southeast area
- Other Activities, including electrical upgrades, trenching for piping connections, acceptance testing, Installation scheduled in two weeks. Delivery of equipment mid-September.

Prior to turning on the new biosparge system, Jacobs will need to verify the existing SVE system provides sufficient capture of vapor. Once testing has been performed, the results will be in an addendum to the Southeastern Biosparge Well Installation Work Plan, to be issued September 2018.

Following upgrades to the SVE system further activities will need to be performed; convert existing monitoring wells to SVE: (GMW-O-16, GMW-O-19, and MW-8), Install up to three new 4-inch SVE wells (screened from 12 feet to 27 feet below ground surface (bgs), install a new 6-inch high density polyethylene (HDPE) SVE conveyance line (approximately

1,250 feet) from the southeastern area to the blower/regenerative thermal oxidizer (RTO) located in the south-central area, and Install two new offsite vapor monitoring probes (probes set at 5 and 10 feet bgs) on Cheshire Street.

LNAPL Comparative Study: South-central Area

Purpose: to evaluate changes in the extent and characteristics of LNAPL after more than 2 years of biosparging.

- Hypothesis: Comparison of baseline data (i.e., collected before 2011/2012) and 2-years post-sparging (2018) data will demonstrate significant reduction in LNAPL extent and mobility
- Field/Lab Methods: Direct Push Technology (DPT), laser-induced fluorescence (LIF)/ultraviolet optical screening tool, Geotechnical (UV photographs, grain-size, pore fluid saturation, and product mobility) and Analytical sampling
- Used DPT/LIF at 4 locations down to 50 ft
- Collected lab samples from highest LIF response depth intervals
- Field observation, logging lithology and screening with photoionization detector

Preliminary Results: >50% decrease in max LIF response across the board, suggests significant reduction in extent of LNAPL. (CPT/LIF-2 in 2011/CPT/LIF-2Bin 2018 (see presentation for graph)

Preliminary Findings (Qualitative –Baseline vs 2018):

- Reduced LIF Response
- Reduced Visible LNAPL in Core Photographs
- Reduced LNAPL Pore Saturation
- LNAPL is not Mobile
- Lower Concentration of Petroleum Hydrocarbons in Soil

Other Lines of Evidence that corroborate these findings:

- 2018 Conceptual Site Model Update
- Dissolved phase trends
- Less LNAPL in wells (Diagnostic Gauge Plots and other Statistical Tools)
- LNAPL is in residual phase, not mobile or migrating

Technical Memorandum forthcoming –September 2018

First Semiannual 2018 Groundwater Monitoring.

Site-wide monitoring too place April/May 2018. 179 wells were gauged, 114 wells sampled using low-flow sampling methods, split samples collected in EXP-1, EXP-2, and EXP-3. Remediation system was shut down and remained offline during gauging activities. Uppermost aquifer groundwater elevation was decreased over most of the Site. Flow primarily converging toward GW depressions in the south-central, north-central, and eastern areas. Horizontal hydraulic gradient 0.0019 to 0.0137 ft/ft. Exposition aquifer groundwater elevation increased between 0.02 and 0.43 ft. Gardient was approximately 0.00006 ft/ft.

Free Product measured in 31 of the 179 wells that were gauged.

- North-central area: EP-73, GMW-18, GMW-45, GW-14R, TF-15, TF-16, TF-17R/EP-72, TF-18, TFR-9, TFR-12, TFR-14, TFR-15, TFR-18, TFR-22, TFR-24, TFR-27, TFR-29, TFR-33, RTF-18-E, RTF-18-N, RTF-18-NNW, RTF-18-NW, and RTF-18-W

- Eastern area: GMW-58, GMW-62, and GMW-68;
- South-central area: GMW-10, GMW-23, GMW-O-12, and MW-O-2;
- Southeastern area: GMW-O-15;
- Thicknesses ranged from 0.01 foot in GMW-58 and GMW-62 to 7.42 feet in TFR-29.

Increase in product areal extent is primarily the result of product measured in many newly installed wells in the north-central area. Overall increase in product thickness is likely attributable to low precipitation and lower groundwater elevations in 2018.

Uppermost Aquifer Wells

- In most areas, the lateral extents of TPH, benzene, 1,2-DCA, MTBE, and TBA have been reduced from the historical maximum and appear to be consistent with previous monitoring events
- Reduction and consistency of plumes is a result of hydraulic containment by the treatment systems and attenuation mechanisms
- Free product accumulation across the site has, on average, increased relative to the 2017 events, due to low precipitation and lower groundwater elevations in 2018
- Low level detections of MTBE and 1,2-DCA and plume extents in the western area do not warrant restarting the WSB treatment system.

Exposition Aquifer Wells Sampled

- EXP-1, -2, and -3 sampled twice by DLA and SFPP
- EXP-4 sampled once by SFPP
- EXP-5 sampled once by SFPP

All analytical results were Non-Detect (ND), except for 1,2-DCAwas detected at EXP-3.

Full version of presentations with figures located on http://norwalkrab.com/

Regulatory Agency Update Paul Cho, Regional Water Quality Control Board

Mr. Paul Cho, the Regional Water Quality Control Board (RWQCC) Project Manager for the Norwalk site, stated that the eastern area 15-acre parcel was issued a conditional NFA in April 2018 waiting on the recording for land use restriction part to be recorded by the City. Waiting for toxicologist from the Office of Environmental Health Hazard Assessment to review Human Health Risk Assessment report for the 36 acres. The RWQCB will continue to review the technical soil reports of the shallow soil.

Set Date and Agenda for Next Meeting

The next semiannual RAB meetings will be held on Thursday, February 28, 2019, at 4:00 p.m. in the Hargitt Room at the Norwalk Arts & Sports Complex.

Public Comment Period

Ms. McIntosh asked that we perform some housekeeping at the site to prevent future brush fires.

Ms. McIntosh adjourned 5:57 pm.

MEETING MINUTES

ACTION ITEMS		
Item	**Responsible Party**	**Due Date**
Reserve February 28, 2019 RAB Meeting in Hargitt Room	Michael Garcia / Lisa Graves	December 2018