



July 13, 2017

Mr. Paul Cho, P.G.
California Regional Water Quality Control Board, Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Subject: *Second Addendum to the Revised Human Health Risk Assessment for No Further Action Determination for Shallow Soil at the Eastern 15-Acre Parcel*
Defense Fuel Support Point Norwalk
15306 Norwalk Boulevard
Norwalk, California

Dear Mr. Cho:

On behalf of the DLA Installation Support for Energy (DLA), The Source Group, Inc., a wholly owned division of Apex Companies, LLC (SGI) has prepared this letter to address questions raised by the Office of Environmental Health Hazard Assessment (OEHHA) and reported to the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) relating to the human health risk assessment (HHRA) for shallow soil present within the eastern 15-acre parcel of the Defense Fuel Supply Point Norwalk (the Site) located at 15306 Norwalk Boulevard in Norwalk, California. Specifically, OEHHA requested an evaluation of potential soil vapor impacts to potential receptors at the adjacent park to the east (Holifield Park) and the Dolland Elementary School to the east. Dolland Elementary School is located at the southwest corner of the intersections of Bloomfield Avenue and Excelsior Drive, with the nearest boundary of the school property located 500 feet east of the Site (Figure 1).

Background

The Site formerly operated as a DLA fuel storage and distribution facility, and the Site has been decommissioned. The eastern 15-acre portion of the Site is scheduled to be developed into a park by the City of Norwalk. Shallow soil at the Site was excavated, treated or hauled off-site, and the excavations were backfilled. Confirmation samples of soil were collected in the excavations, and a soil gas survey was conducted to evaluate potential risks from residual contamination in deeper soil.

After completion of the requisite soil remediation activities, in August 2016, DLA compiled Site data and presented the findings of the HHRA with the objective of obtaining regulatory closure status of the shallow soils (0 to 10 feet) within the eastern 15 acres of the Site (CH2M, 2016 and SGI, 2016). Following receipt of the RWQCB and OEHHA comments on the HHRA, dated August 30, 2016, CH2M and SGI issued a letter response to comments (SGI and CH2M, 2016). Subsequently, RWQCB and OEHHA requested an additional investigation and a modified evaluation in a letter dated February 2, 2017. The additional investigation was conducted by DLA and SFPP, L.P. (SFPP), an operating partner of Kinder Morgan, immediately thereafter between February 14 and February 24, 2017. A revised HHRA was submitted in

March 2017 (SGI and CH2M, 2017). On May 1, 2017, OEHHA communicated to RWQCB recommendations for additional information. On May 25, 2017, an addendum to the HHRA was submitted to RWQCB that included supplemental information and an additional evaluation of offsite residential receptors north and south of the 15-acre parcel to support a No Further Action determination for shallow soil.

On July 12, 2017, RWQCB communicated OEHHA's request for an additional evaluation of offsite receptors at the adjacent park to the east (Holifield Park) and Dolland Elementary School to the east. This submittal provides DLA's response with the objective of obtaining regulatory closure status of the shallow soil (0 to 10 feet) within the eastern 15 acres of the Site.

Evaluation of Potential Soil Vapor Impacts to Receptors at Holifield Park

The potential risk to hypothetical recreational park receptors at Holifield Park, located immediately east of the Site, has been evaluated. Based on the most recent soil vapor investigations (March 2016 and February 2017), the five easternmost DLA soil vapor probes along the eastern boundary of the Site (probes SV-18, SV-20, SV-23, SV-30, and SV-32,) and four easternmost SFPP soil vapor probes in the southeast corner of the Site (SVM-20, SVM-21, SVM-22, and SVM-23) were identified for this evaluation. A figure showing the soil vapor probe locations is provided in Attachment A. The five DLA probes were sampled in March 2016 and the four SFPP probes were sampled in February 2017. The soil vapor data are provided in Attachment B. For this evaluation, the maximum detected concentration from the 10 soil vapor probes was used in the risk evaluation to represent a conservative maximum exposure point concentration for the evaluation of the offsite park exposure scenario. For any constituent that was not detected above the reporting limit in any soil vapor sample, a proxy value of half the detection limit was used.

Using the SFRWQCB residential soil vapor ESLs based on carcinogenic and noncarcinogenic effects, target HI and target excess cancer risk, and exposure point concentrations in soil vapor, the excess cancer risk and noncancer hazard were estimated using the following equations. SFRWQCB ESLs and USEPA RSLs for noncarcinogenic effects are based on a target hazard quotient of one and screening levels for carcinogenic effects are based on a target excess cancer risk of 1×10^{-6} , which represents the lower end (most stringent) of the CalEPA's risk management range and is the point of departure for risk management decisions for all receptors. SFRWQCB ESLs were not available for 1,2,4-trimethylbenzene; therefore, the USEPA RSLs based on carcinogenic and noncarcinogenic effects were used.

Site-Specific Excess Cancer Risk

$$CR_i = \frac{CR_T \times EPC_i}{ESL_{c,i}}$$

Where:

- CR_i = Excess cancer risk for chemical i (unitless).
- CR_T = Target excess cancer risk (1×10^{-6}), the upper end (most stringent) of CalEPA's risk management range of one-in-ten thousand (1×10^{-4}) to one-in-one-million (1×10^{-6});
- EPC_i = Exposure point concentration for source for chemical i ($\mu\text{g}/\text{m}^3$ for soil vapor); and
- $ESL_{c,i}$ = SFRWQCB ESL based on carcinogenic effects for chemical i ($\mu\text{g}/\text{m}^3$ for soil vapor).

Site-Specific Noncancer Hazard

$$HQ_i = \frac{HQ_T \times EPC_i}{ESL_{nc,i}}$$

Where:

HQ_i = Hazard quotient for chemical i (unitless).

HQ_T = Target hazard quotient (1), a HQ less than or equal to 1 indicates that no adverse noncancer health effects are expected to occur (USEPA, 1989; unitless);

EPC_i = Exposure point concentration for source for chemical i ($\mu\text{g}/\text{m}^3$ for soil vapor); and

$ESL_{nc,i}$ = SFRWQCB ESL based on noncarcinogenic effects for chemical i ($\mu\text{g}/\text{m}^3$ for soil vapor).

Soil vapor screening levels are not available for a recreational park exposure scenario. Therefore, residential soil vapor screening levels were used in this assessment. A resident exposure scenario assumes exposures for a child and an adult (6 years as a child receptor and 20 years as an adult), which is consistent with hypothetical child and adult recreational park receptors. The use of residential soil vapor screening levels for this evaluation is considered conservative for the following reasons:

- The expected exposure duration for a recreational receptor would be significantly less than the 350 days per year for 26 years that is assumed for a resident receptor; and
- Resident soil vapor screening levels are developed for the protection of vapor intrusion impacts in indoor air. The recreational park receptor is expected to spend the majority of exposure time outdoors. There is a “snack shack”, staffed by volunteers, and indoor restrooms located at the park, but the exposure time spent indoors is considered negligible. Although inhalation of outdoor air may be complete, outdoor air concentrations are typically lower than indoor air concentrations due to dispersion.

Therefore, use of residential soil vapor screening levels will likely overestimate risk for an outdoor recreational receptor.

Based on the conservative evaluation of the potential risk to recreational park receptors at Holifield Park, located immediately east of the Site, the resulting cumulative noncancer hazard quotients are below the USEPA and CalEPA target level of one and the cumulative excess cancer risk estimates do not exceed than 1×10^{-6} , which is the most stringent end of CalEPA’s risk management range of 1×10^{-6} to 1×10^{-4} . For exposure to soil vapor at 5 feet below ground surface (bgs), the estimated cumulative noncancer hazard index is 0.02 and the cumulative excess cancer risk is 6×10^{-7} . For exposure to soil vapor at 10 feet bgs, the estimated cumulative noncancer hazard index is 0.05 and the cumulative excess cancer risk is 1×10^{-6} . Soil vapor exposures do not pose a human health risk to potential recreational park receptors at Holifield Park. The estimated cumulative risks and hazards for soil vapor are presented in Attachment C.

Evaluation of Potential Impacts to Receptors at Dolland Elementary School

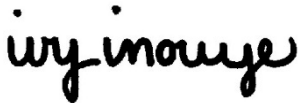
On behalf of DLA, SGI has qualitatively evaluated the potential risk to school receptors at Dolland Elementary School, located approximately 500 feet east of the Site. The nearest school building potentially occupied by students and staff is located approximately 600 feet east of the Site. Between the DLA Site and the nearest school building lies a paved parking lot for Holifield Park (approximately

200 feet), the northern portion of Holifield Park (approximately 300 feet), and the outdoor schoolyard for Dolland Elementary School (approximately 100 feet). For the two soil vapor probes located along the northeast property boundary of the DLA Site, probes SV-32 and SV-30, only acetone and toluene were detected in SV-32 at 5 feet bgs. Acetone and toluene were detected at 55 $\mu\text{g}/\text{m}^3$ and 66 $\mu\text{g}/\text{m}^3$, respectively. A replicate result for soil vapor sample SV-32 at 5 feet bgs indicated similar results. The acetone and toluene concentrations are well below the SFRWQCB soil vapor residential screening level of 16,000,000 $\mu\text{g}/\text{m}^3$ for acetone and 160,000 $\mu\text{g}/\text{m}^3$ for toluene. No VOCs were detected above the reporting limits in probe SV-30 at 5 and 10 feet bgs or SV-32 at 10 feet bgs. Due to the distance from the DLA Site and generally low to non-detect concentrations in soil vapor along the northeast property boundary of DLA Site, this exposure pathway is considered insignificant and was not evaluated further.

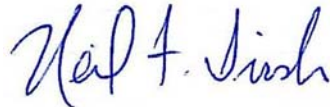
The Revised HHRA dated March 27, 2017, the addendum dated May 25, 2017, and this second addendum, indicate that granting No Further Action status for the shallow soil in the eastern 15-acre portion of the Site is warranted.

Please contact the undersigned if you have any questions or comments.

Sincerely,



Ivy Inouye
Senior Toxicologist



Neil F. Irish, P.G., CA No. 5484
Principal Geologist

List of Figures

Figure 1 – Site Location Map

List of Attachments

Attachment A Figure Illustrating Soil Vapor Sample Locations

Attachment B 2016 DLA and 2017 SFPP Soil Vapor Data

Attachment C Risk Evaluation for Offsite Park Receptors, East of the 15-acre Parcel

Documents Cited:

California Regional Water Quality Control Board, Los Angeles Region. 2017 Requirement for Revised Human Health Risk Assessment for No Further Action Determination for Shallow Soil at the Eastern 15-Acre Parcel. February 2.

California Regional Water Quality Control Board, Los Angeles Region (RWQCB). 2016. Letter to Ms. Carol Devier-Heeney and Mr. Steve Defibaugh. Review of Human Health Risk Assessment for No Further Action Determination for Shallow Soil at the Eastern 15-Acre Parcel Shallow Soil. Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP No. 0286A/B, Site ID No. 16638 and 204DM00). August 30.

Defense Fuel Support Point Norwalk, Norwalk, California

CH2M. 2016. Results of Additional Soil and Soil Vapor Sampling and Human Health Risk Assessment to Support Shallow Soil Closure for the Eastern 15-Acre Parcel, Defense Fuel Support Point, Norwalk, California. June 28.

The Source Group, Inc. (SGI). 2016. Human Health Risk Assessment DLA-Energy Responsible Area of the Eastern Portion, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California. May 31.

SGI and CH2M. 2016 Response to the Office of Environmental Health Hazard Assessment (OEHHA) Comments on the: Human Health Risk Assessment, DLA-Energy Responsible Area of Eastern Portion, dated May 31, 2016, and Results of Additional Soil and Soil Vapor Sampling and Human Health Risk Assessment to Support Shallow Soil Closure for the Eastern 15-Acre Parcel, dated June 28, 2016. October 12.

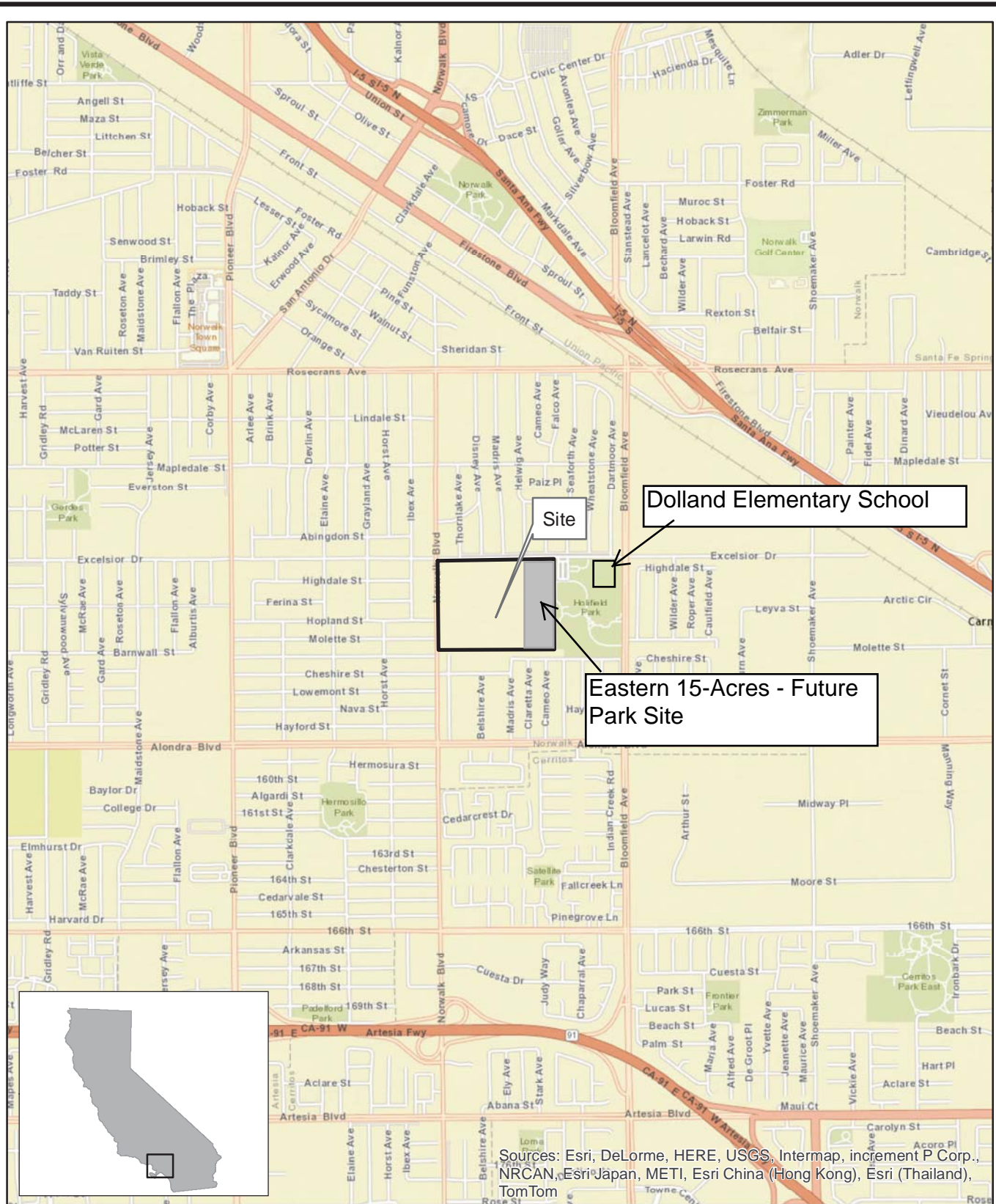
SGI and CH2M. 2017. Revised Human Health Risk Assessment, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard. March 27.

The Source Group, Inc. (SGI). 2017. Addendum to the Revised Human Health Risk Assessment for No Further Action Determination for Shallow Soil at the Eastern 15-Acre Parcel, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard. May 25.

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- Walter Scherer, March ARB (electronic only)
- Yahaira Ortiz, Office of State Senator Tony Mendoza (electronic only)

FIGURE 1
SITE LOCATION MAP



Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

SOURCE:
ESRI 7.5 MINUTE TOPOGRAPHIC MAP.
<http://resources.esri.com/arcgisonline/services>

PROJECT NO.:	DATE:	DR. BY:	APP. BY:
04-NDLA-001	5/28/2014	JK	PP

SCALE= 1:24,000

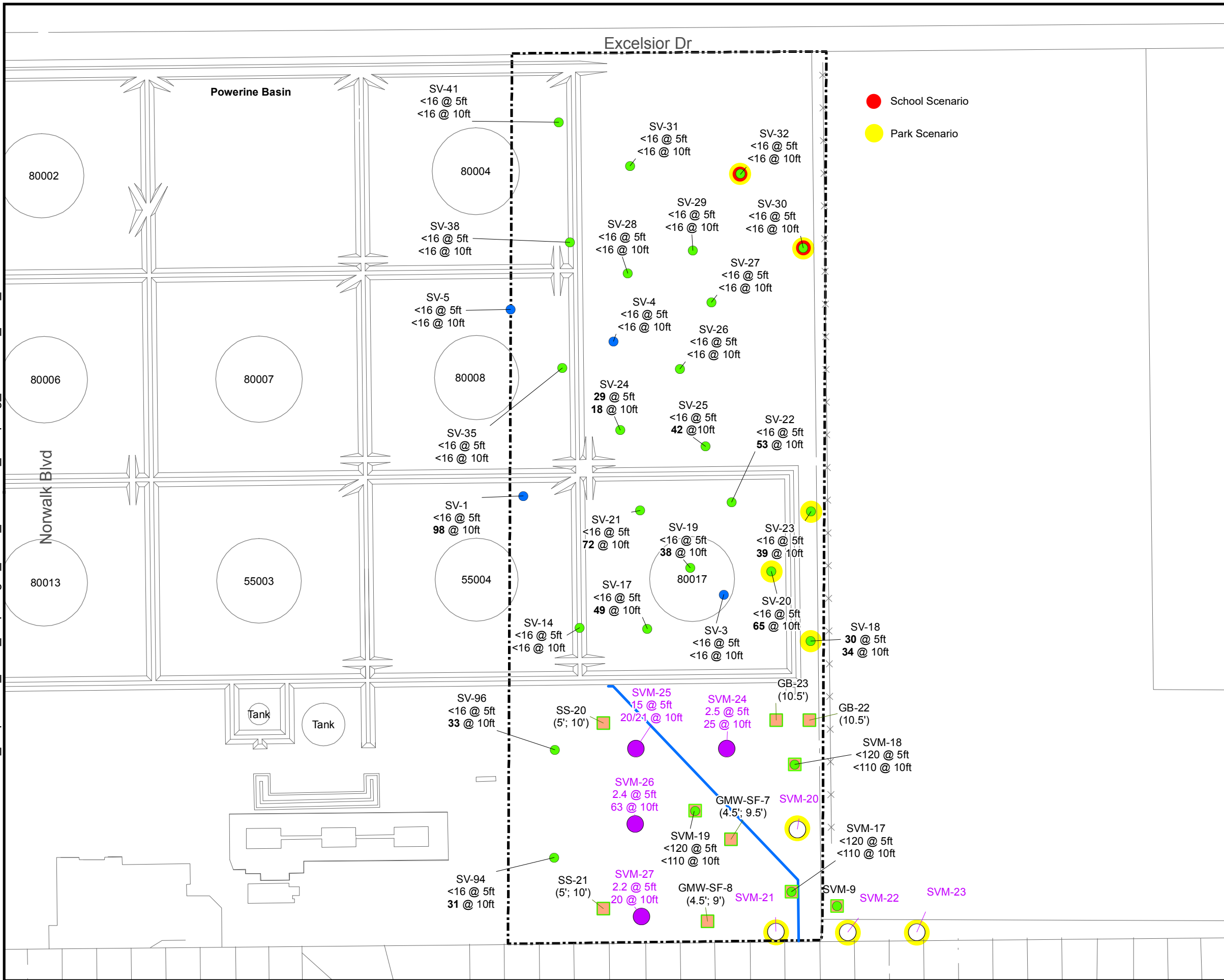


**DEFENSE FUEL SUPPORT POINT
NORWALK**
15306 NORWALK BOULEVARD
NORWALK, CALIFORNIA

SITE LOCATION MAP

FIGURE
1

ATTACHMENT A
FIGURE ILLUSTRATING SOIL VAPOR SAMPLE LOCATIONS



Legend

- SV-13 ● Sampled Soil Vapor Probe Locations
- SV-1 ● Soil Vapor Probe Locations (SGI 2015)
- GB-23 ■ Previous Soil Sampling Locations - Southeast Corner
- SVM-24 ● Additional Soil (SB) and Soil Gas (SV) Sampling Locations (DLA 2017)
- SVM-22 ○ 2017 Sampling Locations (KMEP)
- SFPP Remediation Piping - Southeast Corner
- Surveyed Park Boundary (by Coast Surveying, Inc., October 2015)

Note

<16 @ 5ft: Concentration of Benzene at 5 feet below ground surface is not detected.

49 @ 10ft: Concentration of Benzene at 10 feet below ground surface is 49 µg/m3.

DLA - Defense Logistics Agency.

KMEP - Kinder Morgan Energy Partner.

SFPP - Santa Fe Pacific Pipeline.

All concentrations are in micrograms per meters cubed (µg/m3).



DFSP Norwalk

15306 Norwalk Boulevard
Norwalk, California

Project Number:	Date:	Drawn By:	Approved By:
091-NDLA-020	3/3/2017	P. W / C. S	P. P

0 70 140 280
Feet

Soil Gas Benzene Concentrations Southeast Corner of 15-Acre Area

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Figure
8

ATTACHMENT B
2016 DLA AND 2017 SFPP SOIL VAPOR DATA

**2016 Analytical Results for Volatile Organic Compounds (VOCs) in Soil Gas -
Offsite Park (SV-18, SV-20, SV-23, SV-30, SV-32, SVM-20, SVM-21, SVM-22, and SVM-23)**
Defense Fuel Support Point Norwalk
15306 Norwalk Blvd, Norwalk, CA 90650

Sample ID	Depth (ft bgs)	Date Sampled	Acetone ($\mu\text{g}/\text{m}^3$)	Benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)	Ethylbenzene ($\mu\text{g}/\text{m}^3$)	m,p-Xylene ($\mu\text{g}/\text{m}^3$)	o-Xylene ($\mu\text{g}/\text{m}^3$)	2- Butanone (MEK) ($\mu\text{g}/\text{m}^3$)	4- Ethyltoluene ($\mu\text{g}/\text{m}^3$)	1,2,4- Trimethylbenzene ($\mu\text{g}/\text{m}^3$)
SV-18-5	5	03/08/16	83	30	120	<22	66	<22	<60	<50	<50
SV-20-5	5	03/09/16	<48	<16	<38	<22	<44	<22	<60	<50	<50
SV-23-5	5	03/08/16	<48	<16	<38	<22	<44	<22	<60	<50	<50
SV-30-5	5	03/08/16	<48	<16	<38	<22	<44	<22	<60	<50	<50
SV-32-5	5	03/08/16	55	<16	66	<22	<44	<22	<60	<50	<50
SV-32-5 REP	5	03/08/16	63	<16	70	<22	<44	<22	<60	<50	<50
SV-18-10	10	03/08/16	69	34	130	27	60	31	<60	<50	<50
SV-20-10	10	03/09/16	77	65	390	56	170	48	<60	<50	<50
SV-23-10	10	03/08/16	72	39	150	<22	48	<22	<60	<50	<50
SV-30-10	10	03/08/16	<48	<16	<38	<22	<44	<22	<60	<50	<50
SV-32-10	10	03/08/16	<48	<16	<38	<22	<44	<22	<60	<50	<50

Notes: Analytes detected during the 2016 site investigation in soil gas are included in this table.
 Detected concentrations are shown in **bold**.
 ft bgs = feet below ground surface.
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.
 <48 = not detected at or above the indicated laboratory reporting limit.
 ND = not detected.
 NE = not estimated.

Table 4. Soil Vapor Analytical Results - February 2017
 Eastern 15-acre Parcel, Defense Fuel Support Point, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level ^{a,b}	Current Commercial Soil Gas Screening Level ^{a,b}	SVM-20-5 2/24/2017 SVM-20 5-5.5	SVM-20-10 2/24/2017 SVM-20 10-10.5	SVM-21-5 2/24/2017 SVM-21 5-5.5	SVM-21-10 2/24/2017 SVM-21 10-10.5	SVM-22-5 2/24/2017 SVM-22 5-5.5	SVM-22-10 2/24/2017 SVM-22 10-10.5	SVM-22-10 DUP 2/24/2017 SVM-22 10-10.5	SVM-23-5 2/24/2017 SVM-23 5-5.5	SVM-23-10 2/24/2017 SVM-23 10-10.5
COPCs ^d	1,2,4-Trimethylbenzene	µg/L	7.3	31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.097	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20
Toluene	µg/L	310	1300	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
TPH-gas	TPH-g (C4-C12)	µg/L	630 ^c	2600 ^c	<20	<20	<20	<20	<20	<20	<20	<20	<20
Other Detected Compounds	2,2,4-Trimethylpentane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.44	3
	Cyclohexane	µg/L	6300	26000	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.063	0.26
	Tetrachloroethylene (PCE)	µg/L	0.48	2.1	<0.02	<0.02	0.037	0.052	0.021	0.022	0.023	0.028	0.045

Notes:

^a Source for the Indoor Air Screening Levels: California Department of Toxic Substances Control (DTSC). 2016. Human Health Risk Assessment (HHRA)

Note Number 3: DTSC-Modified Screening Levels (DTSC-SLs). June
http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note_3_-2016-06.pdf

^b Attenuation factor for current land use = 0.001. Source for the attenuation factors: DTSC, 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October. http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf

^c TPH aliphatic low screening level used for TPH-g screening levels

^d Chemicals of potential concern identified from the 2006 soil gas investigation and HHRA (Geomatrix, 2006)

--- = not available

<0.02 = not detected at the laboratory minimum reporting limit

µg/L = micrograms per liter

COPC = chemical of potential concern

DUP = field duplicate

TPH-g = total petroleum hydrocarbons quantified as gasoline

SVM-20-5 = sample ID

2/24/2017 = sample date

SVM-20 = sample location

5-5.5 = sample depth in feet below ground surface

ATTACHMENT C

RISK EVALUATION FOR OFFSITE PARK RECEPTORS, EAST OF THE 15-ACRE PARCEL

