



DEFENSE LOGISTICS AGENCY  
INSTALLATION SUPPORT FOR ENERGY  
8725 JOHN J. KINGMAN ROAD  
FORT BELVOIR VIRGINIA 22060-6221

June 14, 2017

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

Dear Mr. Cho:

Enclosed is the *Response to OEHHA May 1, 2017 Comments, Addendum to the Revised Human Health Risk Assessment* for the Defense Logistics Agency (DLA) Responsible Area of the Eastern Portion for No Further Action (NFA) determination for shallow soil. This report is in response to your request dated May 25, 2017. This report includes updated risk evaluations and risk summaries resulting from the previous assessment by DLA and Kinder Morgan Energy Partners (KMEP) at the 15-acre parcel for the Defense Fuel Support Point (DFSP) Norwalk facility in Norwalk, California.

If you have any questions or need additional information concerning this document, please contact Ms. Carol Devier-Heeney at (703) 767-9813 or [carol.devier-heeney@dla.mil](mailto:carol.devier-heeney@dla.mil).

Sincerely,

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Date: 2017.06.14 11:49:24 -04'00'

Laura A. Fleming  
Chief, Environmental Division

Enclosure  
As stated

cc:  
Michael Wilson, Air Force Civil Engineer Center  
Neil Irish, Principal Geologist, The Source Group, Inc.  
Steve Defibaugh, Kinder Morgan Energy Partners, L.P.



June 7, 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

**Re: *Response to OEHHA May 1, 2017 Comments***  
***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 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) on May 1, 2017 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.

### **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 in that part of the Site was excavated, treated or hauled off-site, and the Site was backfilled. Confirmation samples of soil were collected in the excavations, and a soil gas survey was also 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. Following receipt of the RWQCB and OEHHA request for additional investigation and modified evaluation (in a letter dated February 2, 2017), additional sampling was conducted by DLA and SFPP, L.P. (SFPP), an operating partner of Kinder Morgan, immediately thereafter between February 14 and February 24, 2017. An updated HHRA was submitted in March 2017. On May 1, 2017, OEHHA communicated to RWQCB recommendations for additional information. This submittal presents

the supplemental information and additional risk evaluation to support a No Further Action determination for shallow soil in the eastern 15-acre portion of the Site. OEHHA's request for information included items related to the DLA data reported, and some information related to the SFPP, which is responsible for operations in the southern part of the eastern 15-acre portion of the Site.

In the letter dated May 1, 2017, OEHHA requested that (1) the calculated cumulative risks and hazards for the updated 2017 investigation be provided, and (2) that risks to offsite residential receptors north and south of the 15-acre parcel be evaluated.

The cumulative risks and hazards using data collected during the 2017 soil gas sampling event were calculated and described in the March 27, 2017 Revised HHRA, but the tabulated calculations reflecting this updated data were inadvertently not included in the submittal. Attachment A to this letter provides that information.

The potentially exposed offsite residents include properties south and north of the Site. Therefore, on behalf of DLA, SGI has evaluated potential risk to residential receptors north and south of the Site.

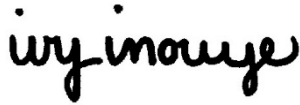
For this evaluation, the three most northern soil vapor probes within the eastern 15-acre portion of the Site (probes SV-31, SV-32, and SV-41) were identified. These three soil vapor probes were sampled during the 2016 soil vapor investigation. The maximum detected concentration of each analyte from the combined data set of the three probes sampled (i.e., SV-31, SV-32, and SV-41) was used in the risk evaluation. SGI used a proxy value of half the detection limit. The estimated cancer risks were 2E-07 for soil vapor at 5 and 10 feet below ground surface (bgs). Cancer risks are below 1E-06, which is acceptable for residential land use. Estimated noncancer hazard indices (HIs) were 0.01 for soil vapor at 5 and 10 feet bgs. HIs are below 1, which is acceptable for residential land use. The estimated cancer risks and noncancer hazards are below acceptable regulatory thresholds and do not pose a risk to potential residential receptors. A summary of the soil vapor data and estimated cancer risks and HIs for the northern soil gas data is provided in Attachment B.

The four most southern soil vapor probes within the eastern 15-acre portion of the Site (probes SVM-27, SVM-21, SVM-22, SVM-23) were identified to evaluate the potential risk to residents located south of the Site. These four soil vapor probes were sampled during the 2017 soil vapor investigation. The maximum detected concentration of each analyte from the combined data set of the four probes sampled (i.e., SVM-27, SVM-21, SVM-22, and SVM-23) was used in the risk evaluation. For non-detected values in these probes, SGI used a proxy value of half the detection limit. The estimated cancer risks were 2E-07 and 8E-07, respectively, for soil vapor at 5 and 10 feet bgs. Cancer risks are below 1E-06, which is acceptable for residential land use. Estimated noncancer HIs were 0.03 and 0.2, respectively, for soil vapor at 5 and 10 feet bgs. HIs are below 1, which is acceptable for residential land use. The estimated cancer risks and noncancer hazards are below acceptable regulatory thresholds and do not pose a risk to potential residential receptors. A summary of the soil vapor data and estimated cancer risks and HIs for the southern soil gas data is provided in Attachment C.

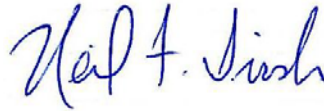
The attached additional HHRA evaluations document that granting No Further Action status for the shallow soil in the eastern 15-acre portion of the Site is warranted.

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

Sincerely,



Ivy Inouye  
Senior Toxicologist



Neil F. Irish, P.G.  
Principal Geologist

#### **List of Attachments**

- Figure – *Figure 1 – Soil Gas Sampling Locations Eastern 15-Acres - DFSP Norwalk*
- Attachment A *DLA Responsible Area of the Eastern Portion of DFSP Norwalk, 15306 Norwalk Blvd., Cumulative Risks and Hazards for the Updated 2017 Investigation*
- Attachment B *Risk Evaluation for Offsite Residents, North of the 15-acre Parcel*
- Attachment C *Risk Evaluation for Offsite Residents, South 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.

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.

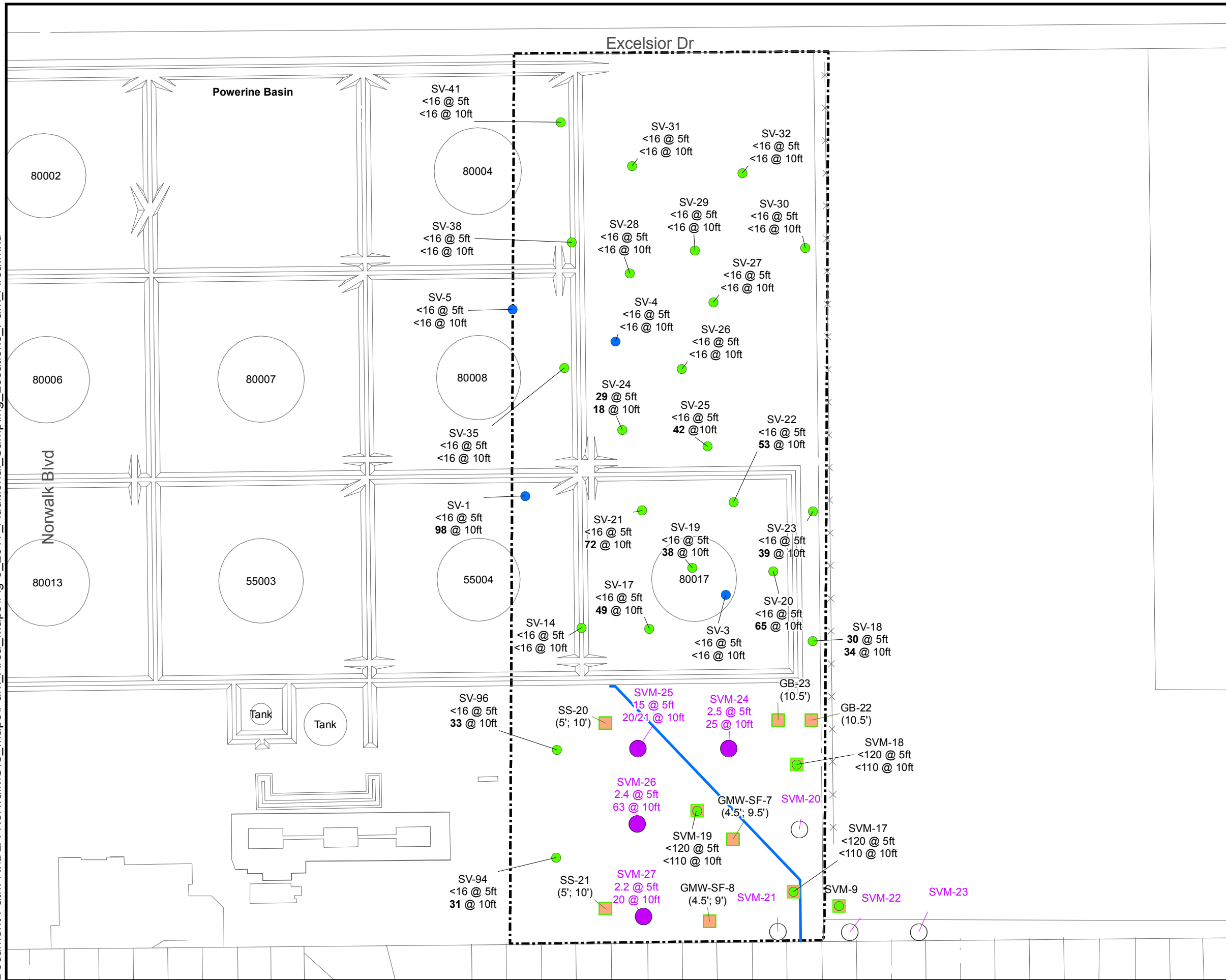
SGI and CH2M. 2016 *Response to the Office of Environmental Health Hazard Assessment (OEHHA) Comments on the: Human Health Risk Assessment, DLA-Energy Responsible Area of Eastern Portion, dated May 31, 2016, and Results of Additional Soil and Soil Vapor Sampling and Human Health Risk Assessment to Support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

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

**Distribution:**

- Steve Defibaugh, Kinder Morgan Energy Partners, L.P.
- Carol Devier-Heeney, Defense Logistics Agency Energy (electronic only)
- Eric Davis, CH2M
- Minxia Dong, Norwalk Public Library
- Adam Ly, Park Water Company (electronic only)
- Adriana Figueroa, City of Norwalk (electronic only)
- Angela Mancillas, Office of Congresswoman Linda T. Sanchez (electronic only)
- Brian Partington, Water Replenishment District of Southern California (electronic only)
- Carina Chacon, Office of Assembly member Christina Garcia (electronic only)
- Charles Emig, City of Cerritos (electronic only)
- Everett Ferguson, Water Replenishment District of Southern California (electronic only)
- Jon Wreschinsky, March ARB (electronic only)
- Lorena Sierra, John Dolland Elementary School (electronic only)
- Mary Jane McIntosh, Restoration Advisory Board (RAB) Co-Chair (electronic only)
- Michael T. Wilson, Air Force Real Property Agency (electronic only)
- Norman Dupont, Esq., Ring Bender Law (electronic only)
- Perla Hernandez, Office of Congresswoman Grace Napolitano (electronic only)
- Tracy Winkler, RAB (electronic only)
- Walter Scherer, March ARB (electronic only)
- Yahaira Ortiz, Office of State Senator Tony Mendoza (electronic only)

**FIGURE**



### 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.

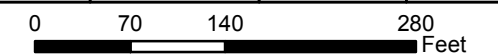
All concentrations are in micrograms per meters cubed (µg/m3).



### 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         |



### Soil Gas Sampling Locations Eastern 15-Acres - DFSP Norwalk

**SGI** environmental  
**THE SOURCE GROUP, INC.**  
1962 Freeman Avenue  
Signal Hill, CA 90755  
(562) 597-1055

**ATTACHMENT A**

***DLA Responsible Area of the Eastern Portion of DFSP Norwalk, 15306 Norwalk Blvd.,  
Cumulative Risks and Hazards for the Updated 2017 Investigation***



**Table F-5**  
**Risk Characterization for Soil Vapor for Residential Exposure Scenario - 2017 Investigation**  
 Defense Fuel Support Point - Norwalk  
 Norwalk, California

| Chemical                   | Soil Gas Screening Level (SL) <sup>1</sup>                     |   |                               |  | Site Data - Soil Gas at 5 feet bgs                        |                                     |  | Site Data - Soil Gas at 10 feet bgs                       |                                     |  |
|----------------------------|--|---|-------------------------------|--|---|-------------------------------------|--|---|-------------------------------------|--|
|                            | Soil Gas SL Based on Carcinogenic Effects (µg/m <sup>3</sup> ) | Soil Gas SL Based on Noncarcinogenic Effects (µg/m <sup>3</sup> ) | Target Cancer Risk (unitless) | Target Noncancer Hazard Index (unitless) | EPC <sub>soil gas</sub> <sup>2</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) | EPC <sub>soil gas</sub> <sup>5</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) |
| Acetone                    | ---  | 16,000,000  | 1 E-06                        | 1 E+00                                   | 98  | ---                                 | 6 E-06   | 120   | ---                                 | 8 E-06   |
| Benzene                    | 48   | 1,600   | 1 E-06                        | 1 E+00                                   | 15  | 3 E-07                              | 9 E-03   | 63  | 1 E-06                              | 4 E-02   |
| Toluene                    | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 220   | ---                                 | 1 E-03   | 640   | ---                                 | 4 E-03   |
| Ethylbenzene               | 560  | 520,000   | 1 E-06                        | 1 E+00                                   | 71  | 1 E-07                              | 1 E-04   | 150   | 3 E-07                              | 3 E-04   |
| m,p-Xylene                 | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 270   | ---                                 | 5 E-03   | 520   | ---                                 | 1 E-02   |
| o-Xylene                   | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 90  | ---                                 | 2 E-03   | 200   | ---                                 | 4 E-03   |
| 2-Butanone (MEK)           | ---  | 2,600,000   | 1 E-06                        | 1 E+00                                   | 41  | ---                                 | 2 E-05   | 53  | ---                                 | 2 E-05   |
| (6) Carbon Disulfide       | ---  | 365,000   | 1 E-06                        | 1 E+00                                   | ND  | ---                                 | ---  | 20  | ---                                 | 5 E-05   |
| (7) 1,3-Dichlorobenzene    | ---  | 65,000  | 1 E-06                        | 1 E+00                                   | 320   | ---                                 | 5 E-03   | 270   | ---                                 | 4 E-03   |
| Ethanol                    | ---  | ---   | 1 E-06                        | 1 E+00                                   | 240   | ---                                 | ---  | 190   | ---                                 | ---  |
| (8) 4-Ethyltoluene         | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 42  | ---                                 | 3 E-04   | 85  | ---                                 | 5 E-04   |
| (6,9) Isopropanol          | ---  | 15,500,000  | 1 E-06                        | 1 E+00                                   | 31  | ---                                 | 2 E-06   | 26  | ---                                 | 2 E-06   |
| 4-Methyl-2-Pentanone       | ---  | 1,600,000   | 1 E-06                        | 1 E+00                                   | 10  | ---                                 | 6 E-06   | 19  | ---                                 | 1 E-05   |
| Tetrachloroethene          | 240  | 18,000  | 1 E-06                        | 1 E+00                                   | 7.3   | 3 E-08                              | 4 E-04   | 10  | 4 E-08                              | 6 E-04   |
| Trichloroethene            | 240  | 1,000   | 1 E-06                        | 1 E+00                                   | 3.9   | 2 E-08                              | 4 E-03   | ND  | ---                                 | ---  |
| (6) 1,2,4-Trimethylbenzene | ---  | 3,650   | 1 E-06                        | 1 E+00                                   | 120   | ---                                 | 3 E-02   | 270   | ---                                 | 7 E-02   |
| (7) 1,3,5-Trimethylbenzene | ---  | 21,000  | 1 E-06                        | 1 E+00                                   | 40  | ---                                 | 2 E-03   | 79  | ---                                 | 4 E-03   |
|                            |  |   |                               |  | <b>Total</b>  | <b>5 E-07</b>                       | <b>6 E-02</b>                                  | <b>Total</b>  | <b>2 E-06</b>                       | <b>1 E-01</b>                                  |

**Notes:**

bgs = below ground surface.

µg/m<sup>3</sup> = micrograms per cubic meter.

SL = screening level.

ND = not detected.

EPC = exposure point concentration.

--- = not available or not applicable.

<sup>1</sup> Unless otherwise noted, represents the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Level (ESL) based on noncarcinogenic or carcinogenic effects (SFRWQCB ESLs dated February 2016 revision 3).

<sup>2</sup> Value represents the maximum detected concentration in soil gas collected from 5 feet bgs.

<sup>3</sup> Represents the excess cancer risk, based on a target excess cancer risk of one-in-one million (1 x 10<sup>-6</sup>).

$$\text{Excess Cancer Risk for compound } i = \text{Soil Gas EPC}_i \times \text{Target Cancer Risk of } 1 \times 10^{-6} / \text{Soil Gas SL}_i$$

<sup>4</sup> Represents the noncancer hazard, based on a target hazard quotient of one (1).

$$\text{Hazard Quotient for compound } i = \text{Soil Gas EPC}_i \times \text{Target Noncancer Hazard Index of } 1 / \text{Soil Gas SL}_i$$

<sup>5</sup> Value represents the maximum detected concentration in soil gas collected from 10 feet bgs.

<sup>6</sup> SFRWQCB ESLs were not available; therefore, the U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) based on carcinogenic and noncarcinogenic effects were used, dated May 2016. USEPA RSLs have been developed for indoor air, but not soil gas. The residential soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The resident air SL was divided by DTSC default attenuation factor of 0.002 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>7</sup> SFRWQCB ESLs were not available; therefore, the Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office Note 3 modified screening levels based on carcinogenic and noncarcinogenic effects were used, dated June 2016. DTSC-SLs have been developed for indoor air, but not soil gas. The residential soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The resident air SL was divided by DTSC default attenuation factor of 0.002 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>8</sup> SFRWQCB ESLs were not available for 4-ethyltoluene; therefore, the ESL for toluene was used.

<sup>9</sup> USEPA RSLs were not available for isopropanol; therefore, the RSL for sec-butyl alcohol was used.

**Table F-6**  
**Risk Characterization for Soil Vapor for Commercial Exposure Scenario - 2017 Investigation**  
 Defense Fuel Support Point - Norwalk  
 Norwalk, California

| Chemical                   | Soil Gas Screening Level (SL) <sup>1</sup>                     |   |                               |  | Site Data - Soil Gas at 5 feet bgs                        |                                     |  | Site Data - Soil Gas at 10 feet bgs                       |                                     |  |
|----------------------------|--|---|-------------------------------|--|---|-------------------------------------|--|---|-------------------------------------|--|
|                            | Soil Gas SL Based on Carcinogenic Effects (µg/m <sup>3</sup> ) | Soil Gas SL Based on Noncarcinogenic Effects (µg/m <sup>3</sup> ) | Target Cancer Risk (unitless) | Target Noncancer Hazard Index (unitless) | EPC <sub>soil gas</sub> <sup>2</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) | EPC <sub>soil gas</sub> <sup>5</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) |
| Acetone                    | ---  | 140,000,000   | 1 E-06                        | 1 E+00                                   | 98  | ---                                 | 7 E-07   | 120   | ---                                 | 9 E-07   |
| Benzene                    | 420  | 13,000  | 1 E-06                        | 1 E+00                                   | 15  | 4 E-08                              | 1 E-03   | 63  | 2 E-07                              | 5 E-03   |
| Toluene                    | ---  | 1,300,000   | 1 E-06                        | 1 E+00                                   | 220   | ---                                 | 2 E-04   | 640   | ---                                 | 5 E-04   |
| Ethylbenzene               | 4,900  | 4,400,000   | 1 E-06                        | 1 E+00                                   | 71  | 1 E-08                              | 2 E-05   | 150   | 3 E-08                              | 3 E-05   |
| m,p-Xylene                 | ---  | 440,000   | 1 E-06                        | 1 E+00                                   | 270   | ---                                 | 6 E-04   | 520   | ---                                 | 1 E-03   |
| o-Xylene                   | ---  | 440,000   | 1 E-06                        | 1 E+00                                   | 90  | ---                                 | 2 E-04   | 200   | ---                                 | 5 E-04   |
| 2-Butanone (MEK)           | ---  | 22,000,000  | 1 E-06                        | 1 E+00                                   | 41  | ---                                 | 2 E-06   | 53  | ---                                 | 2 E-06   |
| (6) Carbon Disulfide       | ---  | 3,100,000   | 1 E-06                        | 1 E+00                                   | ND  | ---                                 | ---  | 20  | ---                                 | 6 E-06   |
| (7) 1,3-Dichlorobenzene    | ---  | 530,000   | 1 E-06                        | 1 E+00                                   | 320   | ---                                 | 6 E-04   | 270   | ---                                 | 5 E-04   |
| Ethanol                    | ---  | ---   | 1 E-06                        | 1 E+00                                   | 240   | ---                                 | ---  | 190   | ---                                 | ---  |
| (8) 4-Ethyltoluene         | ---  | 1,300,000   | 1 E-06                        | 1 E+00                                   | 42  | ---                                 | 3 E-05   | 85  | ---                                 | 7 E-05   |
| (6,9) Isopropanol          | ---  | 130,000,000   | 1 E-06                        | 1 E+00                                   | 31  | ---                                 | 2 E-07   | 26  | ---                                 | 2 E-07   |
| 4-Methyl-2-Pentanone       | ---  | 13,000,000  | 1 E-06                        | 1 E+00                                   | 10  | ---                                 | 8 E-07   | 19  | ---                                 | 1 E-06   |
| Tetrachloroethene          | 2,100  | 150,000   | 1 E-06                        | 1 E+00                                   | 7.3   | 3 E-09                              | 5 E-05   | 10  | 5 E-09                              | 7 E-05   |
| Trichloroethene            | 3,000  | 8,800   | 1 E-06                        | 1 E+00                                   | 3.9   | 1 E-09                              | 4 E-04   | ND  | ---                                 | ---  |
| (6) 1,2,4-Trimethylbenzene | ---  | 31,000  | 1 E-06                        | 1 E+00                                   | 120   | ---                                 | 4 E-03   | 270   | ---                                 | 9 E-03   |
| (7) 1,3,5-Trimethylbenzene | ---  | 180,000   | 1 E-06                        | 1 E+00                                   | 40  | ---                                 | 2 E-04   | 79  | ---                                 | 4 E-04   |
| <b>Total</b>               |  |   |                               |  |   | <b>5 E-08</b>                       | <b>7 E-03</b>                                  | <b>Total</b>  | <b>2 E-07</b>                       | <b>2 E-02</b>                                  |

**Notes:**

bgs = below ground surface.

µg/m<sup>3</sup> = micrograms per cubic meter.

SL = screening level.

ND = not detected.

EPC = exposure point concentration.

--- = not available or not applicable.

<sup>1</sup> Unless otherwise noted, represents the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Level (ESL) based on noncarcinogenic or carcinogenic effects (SFRWQCB ESLs dated February 2016 revision 3).

<sup>2</sup> Value represents the maximum detected concentration in soil gas collected from 5 feet bgs.

<sup>3</sup> Represents the excess cancer risk, based on a target excess cancer risk of one-in-one million (1 x 10<sup>-6</sup>).

$$\text{Excess Cancer Risk for compound } i = \text{Soil Gas EPC}_i \times \text{Target Cancer Risk of } 1 \times 10^{-6} / \text{Soil Gas SL}_i$$

<sup>4</sup> Represents the noncancer hazard, based on a target hazard quotient of one (1).

$$\text{Hazard Quotient for compound } i = \text{Soil Gas EPC}_i \times \text{Target Noncancer Hazard Index of } 1 / \text{Soil Gas SL}_i$$

<sup>5</sup> Value represents the maximum detected concentration in soil gas collected from 10 feet bgs.

<sup>6</sup> SFRWQCB ESLs were not available; therefore, the U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) based on carcinogenic and noncarcinogenic effects were used, dated May 2016. USEPA RSLs have been developed for indoor air, but not soil gas. The commercial soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The industrial air SL was divided by DTSC default attenuation factor of 0.001 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>7</sup> SFRWQCB ESLs were not available; therefore, the Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office Note 3 modified screening levels based on carcinogenic and noncarcinogenic effects were used, dated June 2016. DTSC-SLs have been developed for indoor air, but not soil gas. The commercial soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The industrial air SL was divided by DTSC default attenuation factor of 0.001 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>8</sup> SFRWQCB ESLs were not available for 4-ethyltoluene; therefore, the ESL for toluene was used.

<sup>9</sup> USEPA RSLs were not available for isopropanol; therefore, the RSL for sec-butyl alcohol was used.

**ATTACHMENT B**

***Risk Evaluation for Offsite Residents, North of the 15-acre Parcel***

**2016 Analytical Results for Volatile Organic Compounds (VOCs) in Soil Gas - North (SV-31, SV-32, and SV-41)**  
 Defense Fuel Support Point Norwalk  
 15306 Norwalk Blvd, Norwalk, CA 90650

| Sample ID   | Depth<br>(ft bgs) | Date<br>Sampled | Acetone<br>( $\mu\text{g}/\text{m}^3$ ) | Benzene<br>( $\mu\text{g}/\text{m}^3$ ) | Toluene<br>( $\mu\text{g}/\text{m}^3$ ) | Ethylbenzene<br>( $\mu\text{g}/\text{m}^3$ ) | m,p-Xylene<br>( $\mu\text{g}/\text{m}^3$ ) | o-Xylene<br>( $\mu\text{g}/\text{m}^3$ ) | 2-<br>Butanone<br>(MEK)<br>( $\mu\text{g}/\text{m}^3$ ) | 4-<br>Ethyltoluene<br>( $\mu\text{g}/\text{m}^3$ ) | 1,2,4-<br>Trimethylbenzene<br>( $\mu\text{g}/\text{m}^3$ ) |
|-------------|-------------------|-----------------|---|---|---|--|--|--|---|--|--|
| SV-31-5     | 5                 | 03/10/16        | <48                                     | <16                                     | <38                                     | <22  | <44  | <22                                      | <60   | <50  | <50  |
| SV-32-5     | 5                 | 03/08/16        | <b>55</b>                               | <16                                     | <b>66</b>                               | <22  | <44  | <22                                      | <60   | <50  | <50  |
| SV-32-5 REP | 5                 | 03/08/16        | <b>63</b>                               | <16                                     | <b>70</b>                               | <22  | <44  | <22                                      | <60   | <50  | <50  |
| SV-41-5     | 5                 | 03/10/16        | <b>100</b>                              | <16                                     | <38                                     | <22  | <44  | <22                                      | <60   | <50  | <50  |
|             |                   |                 |   |   |   |  |  |  |   |  |  |
| SV-31-10    | 10                | 03/10/16        | <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  |
| SV-41-10    | 10                | 03/10/16        | <b>100</b>                              | <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.

**Risk Characterization for Soil Vapor for Residential Exposure Scenario - Offsite North (SV-31, SV-32, and SV-41)**  
 Defense Fuel Support Point - Norwalk  
 Norwalk, California

| Chemical                   | Soil Gas Screening Level (SL) <sup>1</sup>                     |   |                               |  | Site Data - Soil Gas at 5 feet bgs                        |                                     |  | Site Data - Soil Gas at 10 feet bgs                       |                                     |  |
|----------------------------|--|---|-------------------------------|--|---|-------------------------------------|--|---|-------------------------------------|--|
|                            | Soil Gas SL Based on Carcinogenic Effects (µg/m <sup>3</sup> ) | Soil Gas SL Based on Noncarcinogenic Effects (µg/m <sup>3</sup> ) | Target Cancer Risk (unitless) | Target Noncancer Hazard Index (unitless) | EPC <sub>soil gas</sub> <sup>2</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) | EPC <sub>soil gas</sub> <sup>5</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) |
| Acetone                    | ---  | 16,000,000  | 1 E-06                        | 1 E+00                                   | 100   | ---                                 | 6 E-06   | 100   | ---                                 | 6 E-06   |
| Benzene                    | 48   | 1,600   | 1 E-06                        | 1 E+00                                   | 8.0   | 2 E-07                              | 5 E-03   | 8.0   | 2 E-07                              | 5 E-03   |
| Toluene                    | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 70  | ---                                 | 4 E-04   | 19  | ---                                 | 1 E-04   |
| Ethylbenzene               | 560  | 520,000   | 1 E-06                        | 1 E+00                                   | 11  | 2 E-08                              | 2 E-05   | 11  | 2 E-08                              | 2 E-05   |
| m,p-Xylene                 | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 22  | ---                                 | 4 E-04   | 22  | ---                                 | 4 E-04   |
| o-Xylene                   | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 11  | ---                                 | 2 E-04   | 11  | ---                                 | 2 E-04   |
| 2-Butanone (MEK)           | ---  | 2,600,000   | 1 E-06                        | 1 E+00                                   | 30  | ---                                 | 1 E-05   | 30  | ---                                 | 1 E-05   |
| (6) 4-Ethyltoluene         | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 25  | ---                                 | 2 E-04   | 25  | ---                                 | 2 E-04   |
| (7) 1,2,4-Trimethylbenzene | ---  | 3,650   | 1 E-06                        | 1 E+00                                   | 25  | ---                                 | 7 E-03   | 25  | ---                                 | 7 E-03   |
|                            |  |   |                               |  | <b>Total</b>  | <b>2 E-07</b>                       | <b>1 E-02</b>                                  | <b>Total</b>  | <b>2 E-07</b>                       | <b>1 E-02</b>                                  |

**Notes:**

bgs = below ground surface. µg/m<sup>3</sup> = micrograms per cubic meter.  
 SL = screening level. --- = not available or not applicable.  
 EPC = exposure point concentration.

Red font indicates a proxy value of half the detection limit was used.

<sup>1</sup> Unless otherwise noted, represents the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Level (ESL) based on noncarcinogenic or carcinogenic effects (SFRWQCB ESLs dated February 2016 revision 3).

<sup>2</sup> Value represents the maximum detected concentration in soil gas collected from 5 feet bgs.

<sup>3</sup> Represents the excess cancer risk, based on a target excess cancer risk of one-in-one million (1 x 10<sup>-6</sup>).

Excess Cancer Risk for compound  $i$  = Soil Gas EPC <sub>$i$</sub>  x Target Cancer Risk of 1 x 10<sup>-6</sup> / Soil Gas SL <sub>$i$</sub>

<sup>4</sup> Represents the noncancer hazard, based on a target hazard quotient of one (1).

Hazard Quotient for compound  $i$  = Soil Gas EPC <sub>$i$</sub>  x Target Noncancer Hazard Index of 1 / Soil Gas SL <sub>$i$</sub>

<sup>5</sup> Value represents the maximum detected concentration in soil gas collected from 10 feet bgs.

<sup>6</sup> SFRWQCB ESLs were not available for 4-ethyltoluene; therefore, the ESL for toluene was used.

<sup>7</sup> SFRWQCB ESLs were not available; therefore, the U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) based on carcinogenic and noncarcinogenic effects were used, dated May 2016. USEPA RSLs have been developed for indoor air, but not soil gas. The residential soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The resident air SL was divided by DTSC default attenuation factor of 0.002 (DTSC, 2011). The resulting value is the soil gas SL.

**References:**

DTSC. 2011. Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air. California Environmental Protection Agency (CalEPA). October.  
 SFRWQCB. 2016. Environmental Screening Levels (ESLs). San Francisco Bay Region. Revision 3. February.  
 USEPA. 2016. Regional Screening Levels (RSLs). May.

**ATTACHMENT C**

***Risk Evaluation for Offsite Residents, South of the 15-acre Parcel***

## Data Collected by DLA

### 2017 Analytical Results for Volatile Organic Compounds (VOCs) in Soil Gas

Defense Fuel Support Point Norwalk  
15306 Norwalk Blvd, Norwalk, CA 90650

| Sample ID | Depth<br>(ft bgs) | Date<br>Sampled | Acetone<br>( $\mu\text{g}/\text{m}^3$ ) | Benzene<br>( $\mu\text{g}/\text{m}^3$ ) | Toluene<br>( $\mu\text{g}/\text{m}^3$ ) | Ethylbenzene<br>( $\mu\text{g}/\text{m}^3$ ) | Tetrachloroethene<br>( $\mu\text{g}/\text{m}^3$ ) | Trichloroethene<br>( $\mu\text{g}/\text{m}^3$ ) | 4-Methyl-2-<br>Pentanone<br>( $\mu\text{g}/\text{m}^3$ ) | m,p-Xylene<br>( $\mu\text{g}/\text{m}^3$ ) | o-Xylene<br>( $\mu\text{g}/\text{m}^3$ ) | 2-Butanone<br>(MEK)<br>( $\mu\text{g}/\text{m}^3$ ) | Carbon<br>Disulfide<br>( $\mu\text{g}/\text{m}^3$ ) | 1,3-<br>Dichlorobenzene<br>( $\mu\text{g}/\text{m}^3$ ) | Ethanol<br>( $\mu\text{g}/\text{m}^3$ ) | Isopropanol<br>( $\mu\text{g}/\text{m}^3$ ) | 4-Ethyltoluene<br>( $\mu\text{g}/\text{m}^3$ ) | 1,2,4-<br>Trimethylbenzene<br>( $\mu\text{g}/\text{m}^3$ ) | 1,3,5-<br>Trimethylbenzene<br>( $\mu\text{g}/\text{m}^3$ ) |
|-----------|-------------------|-----------------|---|---|---|--|---|---|--|--|--|---|---|---|---|---|--|--|--|
| SVM27-5   | 5                 | 02/16/17        | <b>40</b>                               | <b>2.2</b>                              | <b>24</b>                               | <b>6.7</b>                                   | <3.4  | <2.7  | <6.1   | <b>26</b>                                  | <b>10</b>                                | <b>11</b>   | <6.2  | <b>170</b>  | <b>220</b>                              | <b>31</b>                                   | <b>3.3</b>                                     | <b>12</b>  | <b>3.3</b>   |
| SVM27-10  | 10                | 02/16/17        | <b>62</b>                               | <b>20</b>                               | <b>300</b>                              | <b>99</b>                                    | <b>7.6</b>  | <2.7  | <6.1   | <b>370</b>                                 | <b>130</b>                               | <b>31</b>   | <b>11</b>   | <b>210</b>  | <b>110</b>                              | <b>24</b>                                   | <b>46</b>                                      | <b>120</b>   | <b>42</b>  |

Notes: Analytes detected during the 2017 additional 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.  
 <3.7 = not detected at or above the indicated laboratory reporting limit.

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

Data Collected by KMEP/SFPP

| Analyte Type             | Analyte                         | Unit | Current Residential Soil Gas Screening Level <sup>a,b</sup> | Current Commercial Soil Gas Screening Level <sup>a,b</sup> | SVM-20-5<br>2/24/2017<br>SVM-20<br>5-5.5 | SVM-20-10<br>2/24/2017<br>SVM-20<br>10-10.5 | SVM-21-5<br>2/24/2017<br>SVM-21<br>5-5.5 | SVM-21-10<br>2/24/2017<br>SVM-21<br>10-10.5 | SVM-22-5<br>2/24/2017<br>SVM-22<br>5-5.5 | SVM-22-10<br>2/24/2017<br>SVM-22<br>10-10.5 | SVM-22-10 DUP<br>2/24/2017<br>SVM-22<br>10-10.5 | SVM-23-5<br>2/24/2017<br>SVM-23<br>5-5.5 | SVM-23-10<br>2/24/2017<br>SVM-23<br>10-10.5 |
|--------------------------|---------------------------------|------|---|--|--|---|--|---|--|---|---|--|---|
| COPCs <sup>d</sup>       | 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 <sup>c</sup>  | 2600 <sup>c</sup>  | <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:

<sup>a</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note_3_-2016-06.pdf)

<sup>b</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf)

<sup>c</sup> TPH aliphatic low screening level used for TPH-g screening levels

<sup>d</sup> 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



**Risk Characterization for Soil Vapor for Residential Exposure Scenario - Offsite South (SVM-27, SVM-21, SVM-22, SVM-23)**  
 Defense Fuel Support Point - Norwalk  
 Norwalk, California

| Chemical                      | Soil Gas Screening Level (SL) <sup>1</sup>                     |   |                               |  | Site Data - Soil Gas at 5 feet bgs                        |                                     |  | Site Data - Soil Gas at 10 feet bgs                       |                                     |  |
|-------------------------------|--|---|-------------------------------|--|---|-------------------------------------|--|---|-------------------------------------|--|
|                               | Soil Gas SL Based on Carcinogenic Effects (µg/m <sup>3</sup> ) | Soil Gas SL Based on Noncarcinogenic Effects (µg/m <sup>3</sup> ) | Target Cancer Risk (unitless) | Target Noncancer Hazard Index (unitless) | EPC <sub>soil gas</sub> <sup>2</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) | EPC <sub>soil gas</sub> <sup>5</sup> (µg/m <sup>3</sup> ) | Cancer Risk <sup>3</sup> (unitless) | Noncancer Hazard Index <sup>4</sup> (unitless) |
| Acetone                       | ---  | 16,000,000  | 1 E-06                        | 1 E+00                                   | 40  | ---                                 | 3 E-06   | 62  | ---                                 | 4 E-06   |
| Benzene                       | 48   | 1,600   | 1 E-06                        | 1 E+00                                   | 2.2   | 5 E-08                              | 1 E-03   | 20  | 4 E-07                              | 1 E-02   |
| Toluene                       | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 24  | ---                                 | 2 E-04   | 300   | ---                                 | 2 E-03   |
| Ethylbenzene                  | 560  | 520,000   | 1 E-06                        | 1 E+00                                   | 6.7   | 1 E-08                              | 1 E-05   | 99  | 2 E-07                              | 2 E-04   |
| m,p-Xylene                    | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 26  | ---                                 | 5 E-04   | 370   | ---                                 | 7 E-03   |
| o-Xylene                      | ---  | 52,000  | 1 E-06                        | 1 E+00                                   | 10  | ---                                 | 2 E-04   | 130   | ---                                 | 3 E-03   |
| 2-Butanone (MEK)              | ---  | 2,600,000   | 1 E-06                        | 1 E+00                                   | 11  | ---                                 | 4 E-06   | 31  | ---                                 | 1 E-05   |
| (6) Carbon Disulfide          | ---  | 365,000   | 1 E-06                        | 1 E+00                                   | 3.1   | ---                                 | ---  | 11  | ---                                 | 3 E-05   |
| (7) 1,3-Dichlorobenzene       | ---  | 65,000  | 1 E-06                        | 1 E+00                                   | 170   | ---                                 | 3 E-03   | 210   | ---                                 | 3 E-03   |
| Ethanol                       | ---  | ---   | 1 E-06                        | 1 E+00                                   | 220   | ---                                 | ---  | 110   | ---                                 | ---  |
| (8) 4-Ethyltoluene            | ---  | 160,000   | 1 E-06                        | 1 E+00                                   | 3.3   | ---                                 | 2 E-05   | 46  | ---                                 | 3 E-04   |
| (6,9) Isopropanol             | ---  | 15,500,000  | 1 E-06                        | 1 E+00                                   | 31  | ---                                 | 2 E-06   | 24  | ---                                 | 2 E-06   |
| 4-Methyl-2-Pentanone          | ---  | 1,600,000   | 1 E-06                        | 1 E+00                                   | 3.1   | ---                                 | 2 E-06   | 3.1   | ---                                 | 2 E-06   |
| Tetrachloroethene             | 240  | 18,000  | 1 E-06                        | 1 E+00                                   | 37  | 2 E-07                              | 2 E-03   | 52  | 2 E-07                              | 3 E-03   |
| Trichloroethene               | 240  | 1,000   | 1 E-06                        | 1 E+00                                   | 1.4   | 6 E-09                              | 1 E-03   | 1.4   | ---                                 | ---  |
| (6) 1,2,4-Trimethylbenzene    | ---  | 3,650   | 1 E-06                        | 1 E+00                                   | 12  | ---                                 | 3 E-03   | 120   | ---                                 | 3 E-02   |
| (7) 1,3,5-Trimethylbenzene    | ---  | 21,000  | 1 E-06                        | 1 E+00                                   | 3.3   | ---                                 | 2 E-04   | 42  | ---                                 | 2 E-03   |
| (7,10) 2,2,4-Trimethylpentane | ---  | 21,000  | 1 E-06                        | 1 E+00                                   | 440   | ---                                 | 2 E-02   | 3,000   | ---                                 | 1 E-01   |
| (6) Cyclohexane               | ---  | 3,150,000   | 1 E-06                        | 1 E+00                                   | 63  | ---                                 | 2 E-05   | 260   | ---                                 | 8 E-05   |
| <b>Total</b>                  |  |   |                               |  |   | <b>2 E-07</b>                       | <b>3 E-02</b>                                  | <b>Total</b>  | <b>8 E-07</b>                       | <b>2 E-01</b>                                  |

**Notes:**

bgs = below ground surface.

µg/m<sup>3</sup> = micrograms per cubic meter.

SL = screening level.

ND = not detected.

EPC = exposure point concentration.

--- = not available or not applicable.

Red font indicates a proxy value of half the detection limit was used.

<sup>1</sup> Unless otherwise noted, represents the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Level (ESL) based on noncarcinogenic or carcinogenic effects (SFRWQCB ESLs dated February 2016 revision 3).

<sup>2</sup> Value represents the maximum detected concentration in soil gas collected from 5 feet bgs.

<sup>3</sup> Represents the excess cancer risk, based on a target excess cancer risk of one-in-one million (1 x 10<sup>-6</sup>).  
 Excess Cancer Risk for compound *i* = Soil Gas EPC<sub>*i*</sub> x Target Cancer Risk of 1 x 10<sup>-6</sup> / Soil Gas SL<sub>*i*</sub>

<sup>4</sup> Represents the noncancer hazard, based on a target hazard quotient of one (1).  
 Hazard Quotient for compound *i* = Soil Gas EPC<sub>*i*</sub> x Target Noncancer Hazard Index of 1 / Soil Gas SL<sub>*i*</sub>

<sup>5</sup> Value represents the maximum detected concentration in soil gas collected from 10 feet bgs.

<sup>6</sup> SFRWQCB ESLs were not available; therefore, the U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) based on carcinogenic and noncarcinogenic effects were used, dated May 2016. USEPA RSLs have been developed for indoor air, but not soil gas. The residential soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The resident air SL was divided by DTSC default attenuation factor of 0.002 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>7</sup> SFRWQCB ESLs were not available; therefore, the Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office Note 3 modified screening levels based on carcinogenic and noncarcinogenic effects were used, dated June 2016. DTSC-SLs have been developed for indoor air, but not soil gas. The residential soil gas SL is based on applying a DTSC default attenuation factor to the air SL. The resident air SL was divided by DTSC default attenuation factor of 0.002 (DTSC, 2011). The resulting value is the soil gas SL.

<sup>8</sup> SFRWQCB ESLs were not available for 4-ethyltoluene; therefore, the ESL for toluene was used.

<sup>9</sup> SFRWQCB ESLs were not available for isopropanol; therefore, the USEPA RSL for sec-butyl alcohol was used.

<sup>10</sup> SFRWQCB ESLs were not available for 2,2,4-trimethylpentane; therefore, the DTSC SL for 2,4,4-trimethylpentene was used.