Record of Decision – Armed Forces Reserve Center Albany Site 4, Major James O'Donovan Armed Forces Reserve Center (Facility ID NY001), Albany, New York

Final– April 2022
Major James O'Donovan Armed Forces Reserve Center
99th Readiness Division
Albany, New York

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Armed Forces Reserve Center Albany Site 4

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99th Readiness Division
Albany, New York

United States Army Environmental Command
2450 Connell Road, Building 2264
Fort Sam Houston, Texas 78234-7664
Contract No. W91ZLK-13-D-0004-0003

April 2022

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LIST OF ACRONYMS AND ABBREVIATIONS

µg	Micrograms
AFRC	Armed Forces Reserve Center
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Constituent of potential concern
CSM	Conceptual site model
EA	EA Engineering, P.C. and Its Affiliate EA Science and Technology
EPA	United States Environmental Protection Agency
FS	Feasibility study
ft	Feet (foot)
HI	Hazard index
HHRA	Human health risk assessment
L	Liter(s)
m^3	Cubic meter(s)
MCL	Maximum contaminant level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOSC	Naval Operations Support Center
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations and maintenance
OWS	Oil/water separator
PCE	Tetrachloroethene
RI	Remedial investigation
ROD	Record of decision
RSC	Regional Support Command
RSL	Regional Screening Level
SARA	Superfund Amendment and Reauthorization Act
SVOC	Semivolatile organic compound
TCE	Trichloroethene

USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USAR	United States Army Reserve
VI	Vapor intrusion
VISL	Vapor intrusion screening level
VOC	Volatile organic compound

1. DECLARATION

1.1 SITE NAME AND LOCATION

The Major James O'Donovan Armed Forces Reserve Center (AFRC, hereinafter referred to as the O'Donovan AFRC) is located on a 3.25-acre parcel at 90 North Main Avenue in the City of Albany, Albany County, New York. The O'Donovan AFRC is named after Major James J. O'Donovan, a native of Cohoes, New York. The Army awarded Major J. O'Donovan the Distinguished Service Cross, the highest military award possible with the exception of the Congressional Medal of Honor, for extraordinary heroism in combat while serving in the Philippines. He died in military service in the war in the Pacific during World War II.

AFRC Albany Site 4 is defined as the former vehicle wash rack and oil/water separator (OWS) system that was located in the area immediately northeast of the operation and maintenance (O&M) building. A former trench drain within the southernmost maintenance bay garage of the O&M building drained to the OWS.

The O'Donovan AFRC is owned by the United States of America, the Real Property Accountable Agency and lead Agency is the Department of Army, with real property accountable officer responsibilities assigned to the United States Army Reserve (USAR), 99th Readiness Division. Stakeholders include the United States Army Environmental Command (USAEC), USAR, 99th Readiness Division, United States Army Corps of Engineers (USACE), New York State Department of Environmental Conservation (NYSDEC), and New York State Department of Health (NYSDOH).

The Army, with concurrence from NYSDEC and NYSDOH, concluded that this site warrants No Action based on the results of the Remedial Investigation (RI) (EA Engineering, P.C. and Its Affiliate EA Science and Technology [EA] 2016) and Feasibility Study (FS) (EA 2017a). Based on the results of the RI (including risk assessments) and FS, no adverse impacts to environmental media and no unacceptable risk to human health or ecological risk have been identified.

This Record of Decision (ROD) documents that No Action (i.e., no remedial action) is necessary for AFRC Albany Site 4.

1.2 STATEMENT OF BASIS AND PURPOSE

This ROD presents a decision of No Action by the Army with concurrence from NYSDEC and NYSDOH. The No Action remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. As per 40 CFR 300.800(a) of the NCP, the documentation supporting No Action is contained in the administrative record. This No Action ROD is also compliant with the Defense Environmental Restoration Program policies and guidance in accordance with DODM4715.20 and DODI4715.07.

1.3 DESCRIPTION OF THE SELECTED REMEDY

The Army, in consultation with NYSDEC and NYSDOH, has determined that no CERCLA remedial action is necessary to protect public health or welfare or the environment from surface and subsurface soil, groundwater, soil gas, and indoor air associated with AFRC Albany Site 4. The majority of the land surface at the O'Donovan AFRC, including AFRC Albany Site 4, consists of hardscapes (i.e., concrete, pavement, and buildings); there is no documentation of historical surface discharges; there are no onsite surface water bodies at or in the immediate vicinity of the O'Donovan AFRC; and surface soil, stormwater, and runoff/overland flow do not come into contact with groundwater. Subsurface soil is not a medium of concern based on historical subsurface soil data and screening against United States Environmental Protection Agency (EPA) residential or industrial Regional Screening Levels (RSLs).

Groundwater analytical data collected during the RI reported that concentrations in groundwater were below EPA Safe Drinking Water Act Maximum Contaminant Levels (MCLs) and EPA tapwater RSLs. Based on the vapor intrusion (VI) investigation conducted during the RI, analytes related to AFRC Albany Site 4 were not detected at sub-slab soil gas and co-located indoor air sampling locations at concentrations above EPA industrial or residential target sub-slab soil gas screening levels from the vapor intrusion screening level (VISL) calculator[1] and EPA industrial or residential indoor air RSLs. Because the RI and risk assessments determined that there are no unacceptable threats to potential current or hypothetical future human or ecological receptors, no response actions are warranted and no other remedial action alternatives were considered for the site in the FS for all media.

1.4 STATUTORY DETERMINATIONS

The Army, with concurrence from NYSDEC and NYSDOH, concluded that no action is necessary to protect public health or the environment from the surface water, stormwater/surface runoff, sediment, surface and subsurface soil, groundwater, soil gas, and indoor air associated with AFRC Albany Site 4. Because there are no hazardous substances, pollutants, or contaminants remaining at the site at concentrations exceeding levels that allow for unlimited use and unrestricted exposure, 5-year reviews are not required. The public participation requirements of Section 117(a) of CERCLA and the NCP at 40 CFR § 300.430(f)(3) have been met.

If additional contamination posing an unacceptable risk to human health or the environment is discovered after execution of this ROD, the Army will undertake all necessary actions to ensure continued protection of human health and the environment.

[1] The VISL Calculator is a technical resource, developed by the EPA, that: (1) identifies chemicals considered to be typically vapor-forming under environmental conditions and known to pose a potential cancer risk or non-cancer hazard through the inhalation pathway; (2) provides generally recommended screening-level concentrations for groundwater, near-source soil gas (exterior to buildings), sub-slab soil gas, and indoor air; and (3) facilitates calculation of site-specific screening levels and/or candidate risk-based cleanup levels based on user-defined target risk levels, exposure scenarios, and semi-site-specific or site-specific attenuation factors.

1.5 AUTHORIZING SIGNATURES

5 MAY 2022

RODNEY L. FAULK
Major General, U.S. Army
Commanding

Date

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2. DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

The O'Donovan AFRC is named after Major James J. O'Donovan, a native of Cohoes, New York. Maj. O'Donovan received the Distinguished Service Cross (the next highest award for valor after the Medal of Honor) for extraordinary heroism in combat while serving in the Philippines. He died in military service in the war in the Pacific during World War II.

The O'Donovan AFRC is located on a 3.25-acre parcel at 90 North Main Avenue in the City of Albany, Albany County, New York (Figure 1). The property is bounded to the northwest by North Main Avenue, to the northeast by Washington Avenue, to the southwest by Chestnut Street and St. Mary's Park, and to the southeast by Albany High School. Residential properties are located along Washington Avenue and North Main Avenue across the street from the facility.

The O'Donovan AFRC contains separate U.S. Army Reserve (USAR) and U.S. Naval Reserve/Marine Corps Reserve centers, jointly referred to as AFRC (Parsons 2003). The USAR portion of the O'Donovan AFRC contains a single-story brick administrative and training building (O'Donovan building), a three-story annex, and a three-bay O&M building (PARS Environmental, Inc. 2013) (Figure 2). A basement is located beneath the administrative portion of the O'Donovan building, while the remainder of the building is slab on grade. The former Naval Operations Support Center (NOSC) is located in the northern portion of the O'Donovan AFRC and consists of a training center containing office space and training classrooms (former NOSC building), a one-story storage garage, and a drill hall connected to the eastern side of the storage garage. The remainder of the O'Donovan AFRC consists primarily of paved vehicle parking areas (including military equipment parking south/southwest of the O'Donovan building and personally-owned vehicle parking in the area between the O'Donovan and NOSC buildings and north/northeast of the O&M building), as well as a former conex storage area in the southwest portion of the property. An 8-foot (ft) high chain-link fence encloses the O'Donovan AFRC on three sides; the west side of the building is not fenced in.

AFRC Albany Site 4 is defined as the former vehicle wash rack and OWS system that was located in the area immediately northeast of the O&M building. A former trench drain within the southernmost maintenance bay garage of the O&M building drained to the OWS. The wash rack contained an end drain and berm, while the OWS system consisted of three manholes encased in a concrete vault. The OWS system was covered by approximately 6 inches of reinforced concrete.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The O'Donovan AFRC was first acquired for use by the military in 1954 as a 100-man center for conducting USAR and U.S. Armed Forces Reserve training. In September 1955, the Department of the Army transferred 0.97 acres of land within the Army Reserve Training Center to the Navy-Marine Corps Training Center based on the Department of the Navy's request (Parsons 2003). The O'Donovan Building and the former NOSC building and NOSC drill hall were constructed in 1956, while the one-story NOSC garage was constructed in 1968 and the O&M building was constructed in 1961. Personnel are no longer maintained at the O'Donovan AFRC.

The former NOSC building was vacated in 2007, while the O'Donovan building was vacated in August 2014.

Light vehicle and equipment maintenance and repairs were conducted onsite in the O&M building, and vehicles were cleaned on the former Wash Rack. Vehicle servicing, maintenance, and washing ceased in the 1990s. The OWS system and former wash rack closure activities were initiated on 12 August 1999. During the closure activities the OWS was cleaned and inspected, the wash rack basin was closed and paved over, and the OWS was filled and closed in place (Parsons 2003). The former trench drain within the southernmost maintenance bay garage, draining north to the OWS, was filled with concrete.

Previous investigations at the O'Donovan AFRC reported volatile organic compounds (VOCs), including tetrachloroethene (PCE) and/or trichloroethene (TCE), in groundwater, soil gas, and indoor air of the O'Donovan and former NOSC buildings at concentrations exceeding applicable regulatory screening thresholds[2]. Historical investigations identified three contributing secondary sources to groundwater contamination, the former wash rack, former OWS, and former maintenance garage trench drain, collectively referred to as AFRC Albany Site 4 (Figure 2). While there is no reference indicating that PCE or TCE was used at the O'Donovan AFRC, chlorinated solvents including PCE may have been used at the O&M building during vehicle and equipment maintenance activities (i.e., metals or vapor degreasing, automotive brake cleaning, paint removal) and/or at the former wash rack during vehicle washing.

AFRC Albany Site 4 is currently listed as a Class A site under the New York State Superfund Program (NYSDEC Site No. 401066). Class A designation is assigned to non-registry sites in any New York State remedial program where work is underway but not yet complete.

2.2.1 Site Investigation Summary

Albany AFRC Site 4 was initially assessed in 1998 by the U.S. Geological Survey, during which a sheen was discovered on the surface of groundwater at approximately 5 ft below ground surface (bgs) and diesel range organics and gasoline range organics were detected in site soil. The site was reported to NYSDEC and assigned Spill Number 984671.

Following completion of the initial investigation, an additional investigation and site closure of the former wash rack and OWS were recommended. A subsequent subsurface investigation was conducted in 1999, during which hydrocarbon odors and/or staining were observed in soil borings located adjacent to each sidewall of the OWS concrete vault, an oil sheen was observed on groundwater encountered at 3-5 ft bgs, and petroleum-related VOCs and semivolatile organic compounds (SVOCs) were detected in soil and groundwater (Parsons 2003).

The OWS system and former wash rack closure activities were initiated on 12 August 1999. The OWS was cleaned and inspected, the wash rack basin was closed and paved over, and the OWS was filled and closed in place. The former trench drain within the southernmost maintenance

[2] EPA tapwater RSLs, EPA Safe Drinking Water Act MCLs, EPA industrial target exterior and sub-slab soil gas screening levels calculated with EPA's VISL calculator, and EPA industrial and residential air RSLs.

bay garage, draining north to the OWS, was filled with concrete. Post-closure soil samples collected downgradient of the former wash rack and OWS indicated radial contamination, with elevated concentrations of VOCs and SVOCs detected in soil.

In 2002, the O'Donovan AFRC was considered a Resource Conservation and Recovery Act Large Quantity Generator of hazardous waste and listed on the Federal Hazardous Waste Docket of federal facilities. A preliminary assessment was conducted in 2003 in response to an AFRC listing to determine what hazardous substances had been or were currently stored onsite, and to assess immediate or potential threats to human health and the environment (Parsons 2003).

A supplemental site investigation was completed in 2004 in response to the results of the preliminary assessment to confirm the nature and extent of environmental contamination identified in previous investigations, during which elevated concentrations of petroleum-related VOCs, SVOCs, and metals were detected in subsurface soil and groundwater in the former OWS area (EA 2004). A limited soil excavation was recommended in the area of the former OWS, wash rack, and a former underground storage tank.

The limited soil excavation remedial action was implemented in October 2005, with approximately 75 tons of soil excavated from the area of the OWS and former wash rack and disposed of at an offsite facility (Figure 3) (EA 2006). The OWS was exposed during excavation, and water with a sheen was observed to be draining from the OWS. In response, the top of the OWS was removed, crushed stone from within the interior was excavated, and approximately 630 gallons of water within the bottom portion of the OWS was removed with a vacuum truck. The OWS lid was demolished and used as in-place backfill, and the bottom portion of the OWS was filled with a concrete slurry mix to seal it in place. Following abandonment of the OWS, the north, south, and west sidewalls of the OWS were excavated to a depth of 14 ft bgs; excavation was not conducted along the eastern sidewall due to the presence of a buried high voltage electrical conduit. Post-excavation soil results indicated that no VOCs or SVOCs were detected above EPA residential or industrial soil RSLs, and the excavated area was backfilled with clean fill (sand).

EPA issued a No Further Remedial Action Planned letter in 2006. The No Further Remedial Action Planned letter disqualified AFRC Albany Site 4 from the National Priorities List; however, it did not release the Army from cleanup responsibilities associated with any releases at AFRC Albany Site 4.

In October 2009, EPA recommended additional investigative activities due to the change in elevation between the O'Donovan AFRC property and the Albany High School property, and the close proximity of Albany High School to the former wash rack area. A subsequent site inspection was conducted for the Army by PARS Environmental, Inc. in April 2011. The site inspection involved soil gas, subsurface soil, and groundwater sampling in the vicinity of AFRC Albany Site 4 and a VI assessment of the O&M building (Figure 4) (PARS Environmental, Inc. 2011). The results of the groundwater assessment in the vicinity of the OWS showed residual contamination, with concentrations of VOCs (i.e., 1,1-dichloroethane, 1,2-dichloroethane, and ethylbenzene) detected above EPA tapwater RSLs but below EPA Safe Drinking Water Act MCLs. In addition, PCE was detected in soil gas samples collected in the vicinity of the former OWS and O&M building.

A subsequent site investigation was conducted by PARS Environmental, Inc. in Summer 2012 to further evaluate PCE concentrations detected in the soil gas sample adjacent to the O'Donovan building and groundwater impacts detected in temporary wells during the prior site inspection (PARS Environmental, Inc. 2013). The investigation included subsurface soil and groundwater sampling southeast of the O'Donovan building; installation and sampling of monitoring wells northwest, northeast, and south of the former wash rack and OWS (i.e., MW-1, MW-2, and MW-3); and a VI assessment within the O'Donovan building (Figure 5). Groundwater samples collected from monitoring wells in July and August 2012 and sub-slab soil gas and indoor samples from the O'Donovan building reported elevated concentrations of PCE above regulatory thresholds (EPA tapwater RSLs and EPA Safe Drinking Water Act MCLs for groundwater samples, EPA industrial target exterior and sub-slab soil gas screening levels for sub-slab soil gas samples, and EPA industrial air RSLs for indoor air samples). Groundwater analytical results from July to August 2012 revealed a dramatic decline (33-91 percent) in PCE concentrations in the month between sampling events.

VI testing was conducted by NYSDEC/NYSDOH at Albany High School on 21 February 2013 in response to the elevated concentrations of PCE detected in groundwater in July and August 2012. Based on a review of the analytical results, NYSDEC/NYSDOH indicated that VOCs related to the O'Donovan AFRC were not present in indoor air at the high school and low levels of VOCs detected in sub-slab soil gas did not represent a concern for soil VI. NYSDEC/ NYSDOH concluded that no actions were needed to address potential exposures related to soil VI at Albany High School.

A site investigation was conducted at the O'Donovan AFRC in 2013 to delineate potential contamination in soil gas, indoor air, and groundwater identified during previous investigations (Shaw Environmental & Infrastructure, Inc. 2013). Soil gas samples collected at the O'Donovan AFRC and along the sidewalks of North Main Avenue and Washington Avenue, and soil gas and indoor air samples collected as part of a VI investigation within the O'Donovan and former NOSC buildings, reported TCE at concentrations above applicable regulatory thresholds (EPA industrial target exterior and sub-slab soil gas screening levels for soil gas samples, and EPA industrial air RSLs for indoor air samples) (Figures 6 and 7). One round of groundwater sampling was conducted in April 2013, with samples collected from eight newly installed monitoring wells (GW-1 through GW-8) and the three previously existing wells in the vicinity of the former wash rack and OWS (MW-1, MW-2, and MW-3) (Figure 8). Groundwater analytical results reported concentrations of PCE above regulatory thresholds (EPA tapwater RSLs and EPA Safe Drinking Water Act MCLs) at MW-2 and MW-3, and low concentrations of PCE at MW-1 and GW-8. These results further indicated a significant decrease in PCE concentrations from the July and August 2012 PCE concentrations (i.e., 97-98 percent decline).

An RI was conducted from 2015 to 2016 to further define the nature and extent of impacts resulting from historical operations at AFRC Albany Site 4, perform a human health and ecological risk assessment, and collect the data necessary to complete an FS for AFRC Albany Site 4 (EA 2016). Field activities were conducted in November 2015 and April 2016 and included monitoring well installation, groundwater sampling, and a VI investigation at the O'Donovan and former NOSC buildings. Groundwater analytical results from the RI indicated that VOC concentrations in groundwater had declined to below EPA screening levels, with

concentrations below EPA Safe Drinking Water Act MCLs in November 2015 and below EPA tapwater RSLs (EPA 2016) in April 2016 (Figure 9). In addition, sub-slab soil gas and indoor air analytical results indicated that VOCs (with the exception of chloroform) were not detected at sub-slab soil gas and co-located indoor air sampling locations at concentrations above EPA industrial or residential target sub-slab soil gas screening levels and EPA industrial or residential indoor air RSLs (Figure 10). VOC concentrations in groundwater, soil gas, and sub-slab soil gas related to AFRC Albany Site 4 were expected to continue to decline, as no continued source for these VOCs was present at the site.

2.3 PUBLIC/COMMUNITY INVOLVEMENT

Pursuant to CERCLA Section 113(k)(2)(B)(i-v) and Section 117, the Proposed Plan for AFRC Albany Site 4 was released to the public for comment on 16 October 2017. Consistent with requirements of CERCLA Section 113(k), an administrative record containing information associated with CERCLA cleanup activities at the O'Donovan AFRC in association with AFRC Albany Site 4 is available to the public. The location and contact information for the administrative record file are as follows:

- 99th RSC HQ-DPW
  Environmental Division
  Joint Base McGuire, Dix, Lakehurst
  5231 South Scott Plaza
  JBMDL, New Jersey 08640
  609-562-7661

Newspaper Article—The notice of availability of the Proposed Plan was published in the following newspapers: Albany Times Union on 13, 16, and 17 October 2017.

Public Meeting—A public meeting was held on 24 October 2017 at the at the Pine Hills Branch of the Albany Public Library located at 517 Western Avenue, Albany, New York with representatives from the Army, NYSDEC, and NYSDOH to explain the Proposed Plan and the No Action decision and answer questions. An information/poster session was conducted at 6:00 p.m., followed by a presentation at 6:30 p.m. There were no comments received during the public comment period, and there were no comments or questions during the public availability session.

2.4 SCOPE AND ROLE OF RESPONSE ACTION

This ROD documents a remedial decision of No Action for AFRC Albany Site 4. The selected response action is the final action with regards to surface water, stormwater/surface runoff, sediment, surface and subsurface soil, groundwater, soil gas, and indoor air associated with AFRC Albany Site 4. Surface soil, surface water, sediment, and stormwater/surface runoff were not considered media of concern as the majority of the land surface at the O'Donovan AFRC, including AFRC Albany Site 4, consists of hardscapes (i.e., concrete, pavement, and buildings); there is no documentation of historical surface discharges; there are no onsite surface water bodies at or in the immediate vicinity of the O'Donovan AFRC; and surface soil, stormwater, and runoff/overland flow do not come into contact with groundwater. Subsurface soil was not

considered a medium of concern based on historical subsurface soil data indicating that contaminant concentrations were below regulatory thresholds (EA 2016).

Subsurface soil analytical data were evaluated during the RI through screening against EPA residential or industrial soil RSLs, and the subsurface soil concentrations were determined to not present unacceptable risks to human health and the environment. Groundwater analytical data collected during the RI indicated that concentrations in groundwater were below EPA Safe Drinking Water Act MCLs and EPA tapwater RSLs. Based on the VI investigation conducted during the RI, analytes related to AFRC Albany Site 4 were not detected at sub-slab soil gas and co-located indoor air sampling locations at concentrations above EPA industrial or residential target sub-slab soil gas screening levels from the VISL calculator and EPA industrial or residential indoor air RSLs. The human health risk assessment (HHRA) determined that there were no potential current or hypothetical future human health concerns for exposure to groundwater at the Site, and that there were no potential human health concerns from VI of VOCs from groundwater to indoor air.

The Army, together with NYSDEC, and NYSDOH, has concluded that no CERCLA action is necessary to ensure protection of human health or the environment from surface water, stormwater/surface runoff, sediment, surface and subsurface soil, groundwater, soil gas, and indoor air.

2.5 SITE CHARACTERISTICS

The majority of the 3.25-acre O'Donovan AFRC, including the AFRC Albany Site 4 former wash rack and OWS location, is covered with hardscapes including asphalt, concrete, and buildings, with little to no vegetation. Vegetated areas consist of mowed lawns with trees bordering Washington Avenue, North Main Avenue, Chestnut Street, and the parking lot for Albany High School (Figure 2).

The O'Donovan AFRC is located in the northeastern half of Albany County in the Hudson-Mohawk Lowlands physiographic province, characterized by little relief. The topography of the O'Donovan AFRC is relatively flat with a slight gradient to the south/southwest (PARS Environmental, Inc. 2013). The ground surface elevation is approximately 229 ft above mean sea level. The elevation steeply decreases on the east, west, and south sides of the O'Donovan AFRC, with an average elevation of 210 ft above mean sea level near the Albany High School parking lot.

There are no surface water bodies at or in the immediate vicinity of the O'Donovan AFRC. In addition, there are no stormwater drain inlets located at the O'Donovan AFRC and no interior building drains within the O&M building that drain to local stormwater conveyances or surface water bodies. A regulated open drainage ditch/depression in the southern portion of the facility receives stormwater and runoff from the O&M building and military equipment parking area in the southern half of the facility, with historically regulated activities consisting of loading/unloading and storage of potentially polluting materials. Drainage from the unregulated parts of O'Donovan AFRC is directed to an unregulated outfall along Washington Avenue and storm drain grates that connect to the stormwater sewer along North Main Avenue (Parsons 2003).

The land surface at the O'Donovan AFRC consists primarily of asphalt, concrete, buildings, and other impervious materials. Asphalt and subbase material across the O'Donovan AFRC ranges from 1 to 2 ft thick. Subsurface material consists of fill ranging from 1 ft to over 16 ft thick, with the thickest fill material encountered at and within the immediate vicinity of the former wash rack and OWS. Fill encountered at and in the vicinity of the former wash rack and OWS suggests that these areas were either low spots or were excavated prior to construction of the O'Donovan AFRC, with fill material used to meet final grades. This scenario is also likely for onsite building foundations.

Native subsurface material consists of dense, cohesive, gray and reddish to yellowish brown clay and silty clay classified as a silt loam to silty clay loam. Coarser grained lenses of clayey sand/silt and very fine sand/silty sand were encountered between approximately 13 and 20 ft bgs. Bedrock was not encountered in borings or monitoring wells at the O'Donovan AFRC. Based on regional geology, bedrock consists of the Snake Hill Shale. Depth to bedrock is anticipated to be greater than 80 ft bgs, based on a review of the NYSDEC water well database and nearby NYSDEC remediation sites.

Groundwater is located at a depth of approximately 9-15 ft bgs at the O'Donovan AFRC, with the depth to water decreasing to approximately 5-6 ft bgs in lower elevation areas in the western corner of the O'Donovan AFRC and in the Albany High School parking lot. A perched water zone has been observed in the area of the former wash rack and OWS at MW-3, with depth to water encountered at approximately 5 ft bgs.

Regional groundwater flow for the O'Donovan AFRC and surrounding areas likely follows topography, with flow south and southeast toward the Normans Kill and the Hudson River. Locally, groundwater flows away from the center of the O'Donovan AFRC in a radial pattern, with the highest water table elevation near the center of the O'Donovan AFRC in the vicinity of the O&M building and the lowest elevation in the western corner of the O'Donovan AFRC property (Figure 11). Coarser grained lenses in native overburden likely provide preferential pathways for groundwater flow.

2.6 NATURE AND EXTENT OF CONTAMINATION

The extent of contamination in groundwater, sub-slab soil gas, and indoor air of the O'Donovan and former NOSC buildings was characterized based on a review of previous investigations and the results of the RI.

PCE was identified as the primary contaminant in groundwater during previous investigations. The primary source of PCE in groundwater was anticipated to be from three potential contributing sources, including the former wash rack, former OWS, and former maintenance garage trench drain within the southernmost maintenance bay garage of the O&M building that ran north beneath the O&M building to the OWS. A remedial action consisting of limited soil excavation was conducted in 2006, and post-excavation soil analytical results indicated that the soil excavation was effective in removing potential subsurface soil VOC sources at AFRC Albany Site 4. Dense non-aqueous phase liquid was not observed in subsurface soil at or surrounding the former wash rack and OWS during the remedial action. In addition, post-

excavation soil sampling and subsequent evaluation of source area soil and groundwater in 2011 did not indicate a potential residual dense non-aqueous phase liquid source of PCE and TCE at the source area. Soil analytical results indicated that the soil excavation conducted in 2005 was effective in removing potential subsurface soil VOC sources at AFRC Albany Site 4.

Analytical results from previous investigations and the RI indicated a continuous decline in PCE concentrations since April 2013, with PCE declining to below the EPA Safe Drinking Water Act MCL in November 2015 (maximum concentration of 4.3 micrograms per liter [µg/L]) and to below the EPA tapwater RSL in April 2016 (maximum of 2 µg/L) (Figure 12). The April 2013, November 2015, and April 2016 groundwater results represent a typical dissolved-phase PCE plume where the source area has been remediated or removed. PCE concentrations in groundwater appear to be limited primarily to the area surrounding the former wash rack and OWS. Data generated since 2013 indicated that the PCE plume boundary would be considered stable and shrinking within the area of the former wash rack and OWS.

During previous investigations, VOCs, particularly PCE and TCE, were detected in sub-slab soil gas of the O'Donovan building at concentrations greater than EPA industrial target sub-slab soil gas screening levels (580 micrograms per cubic meter [µg/m^3] for PCE and 29 µg/m^3 for TCE) and in indoor air at concentrations above EPA industrial air RSLs (18 µg/m^3 for PCE and 0.88 µg/m^3 for TCE) (Figure 13). The dissolved-phase VOCs in groundwater are considered a secondary source and act as the primary release mechanism of through volatilization to the vadose zone and VI into the above-lying subsurface soil profile. However, based on the November 2015 and April 2016 sampling events, VOC concentrations in groundwater had declined to below EPA tapwater RSLs, indicating that a secondary source for volatilization and VI is no longer present at the O'Donovan AFRC. Analytical results from the VI investigation conducted as part of the RI reported low concentrations of PCE and TCE in sub-slab soil gas and indoor air of the O'Donovan and former NOSC buildings. PCE and TCE were not detected at sub-slab soil gas and co-located indoor air sampling locations at concentrations above regulatory thresholds.

2.7 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) was updated as part of the RI to identify all actual, potentially complete, or incomplete exposure pathways for AFRC Albany Site 4, for both current and reasonably anticipated future land uses. The updated CSM was based on the data presented in previous investigations and data collected and analyzed as part of the RI. The updated CSM is presented in Attachment A of this ROD.

The exposure pathways for current and future receptors (i.e. dermal soil contact, incidental soil ingestion, dermal groundwater contact and/or groundwater ingestion, and inhalation of indoor air) are considered incomplete. Soil analytical results from 2011 and 2012 indicate that concentrations in soil were below residential and industrial soil RSLs. Analytical results from the November 2015 and April 2016 sampling events conducted as part of the RI indicate that concentrations in groundwater have declined below EPA Safe Drinking Water Act MCLs and EPA tapwater RSLs. The groundwater analytical results from the November 2015 and April 2016 sampling events do not indicate a secondary source for volatilization from shallow groundwater and the risk assessment indicated that there are no potential human health concerns

from VI of VOCs from groundwater to indoor air. In addition, during the VI investigation conducted in November 2015, VOCs (with the exception of chloroform) were not reported at both sub-slab soil gas and co-located indoor air sampling locations at concentrations at concentrations above residential or industrial regulatory thresholds[3]. Chloroform is not related to AFRC Albany Site 4 and is attributed to leaking sewer or water pipes beneath the O'Donovan building slab.

2.8 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The O'Donovan AFRC is currently zoned for commercial use, and the reasonably anticipated future land use is commercial/industrial. The AFRC is currently vacant and there are no current residents or part/full-time workers within the O'Donovan building or former NOSC building. The former NOSC building was vacated in 2007, while the O'Donovan building was vacated in August 2014.

Surrounding land use is zoned R-2A, one- and two-family residential district. Albany High School adjoins the O'Donovan AFRC property to the southeast, while St. Mary's Park (part of Albany High School athletic fields) is located southwest across Chestnut Avenue. Residential properties are located northwest and northeast of the O'Donovan AFRC across North Main and Washington Avenues.

Potable water at O'Donovan AFRC is supplied by the City of Albany. Surface water supplies/intakes identified during the preliminary assessment include the Alcove Reservoir, located approximately 22 miles southwest of the O'Donovan AFRC, and the Loudonville Reservoir, located upgradient from the O'Donovan AFRC (Parsons 2003).

2.9 SUMMARY OF SITE RISKS

As part of the RI, an HHRA was performed to determine the current and potential future risks to humans from exposure to analytes exceeding screening criteria in soil (no sediment or surface water are present at the site). A detailed discussion of the risk assessment is presented in the RI report (EA 2016). The results of the HHRA did not identify any unacceptable risks to current or potential future human receptors.

Potential ecological receptors at the Site are limited, as the majority of the Site is covered with hardscapes including asphalt, concrete, and buildings, with little to no vegetation. Additionally, no threatened or endangered species have been reported at the Site and there are no wetlands, sensitive environments, or aquatic receptors at or adjacent to the Site. Therefore, a screening-level ecological risk assessment was deemed not necessary for AFRC Albany Site 4.

[3] EPA industrial or residential target sub-slab soil gas screening levels from the VISL calculator and EPA industrial or residential indoor air RSLs.

2.9.1 Human Health Risk Assessment

The HHRA provided a quantitative evaluation of whether carcinogenic risk (cancer risk) or non-carcinogenic hazards (non-cancer risk) were associated with site contaminants of potential concern (COPCs).

Lifetime carcinogenic risk estimates (expressed as a statistical probability) were compared against EPA's acceptable risk range of from 1×10^{-4} to 1×10^{-6}. An excess lifetime cancer risk of 1.0×10^{-6} (the upper-bound excess lifetime carcinogenic risk estimates) means the statistical probability of an incidence of cancer resulting from site conditions is 1 in 1,000,000 (i.e., a probability of one additional incidence of cancer within a population of 1,000,000 people for exposure to chemicals at the site). A risk of 1.0×10^{-4} indicates a probability of 1 in 10,000 for exposure to chemicals at the site (i.e., a probability of one additional incidence of cancer within a population of 10,000 people for exposure to chemicals at the site).
The HHRA also calculated a hazard index (HI) for each chemical that does not cause cancer. An HI compares an existing amount of a chemical to an amount that might cause harmful non-cancer health effects in people, again considering uncertainty in the risk assessment process and current and potential future land use. An HI greater than 1.0 indicates the potential for adverse non-carcinogenic health effects.

EPA Guidance (Office of Solid Waste and Emergency Response Directive 9355.0-30) states that where cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 1.0×10^{-4}, and the non-carcinogenic HI is less than 1.0, action is generally not warranted unless the potential exists for adverse environmental effects to occur.

2.9.1.1 Identification of Contaminants of Potential Concern

Concentrations of detected analytes in groundwater, sub-slab soil gas, and indoor air were screened against risk-based screening values to develop a list of human health COPCs. Any analyte for which the maximum measured concentration exceeded the risk-based screening concentration was retained as a COPC. For groundwater, VOC concentrations were compared to EPA tapwater RSLs (EPA 2016). Sub-slab soil gas concentrations were compared to the EPA industrial target sub-slab soil gas screening levels from the VISL calculator. Indoor and outdoor air concentrations were compared to the EPA industrial air RSLs. In addition to industrial air RSLs, residential use screening criteria were included as "to be considered" project action limits and to assess future risk should the current land use (i.e., commercial/industrial) change. Therefore, VOC concentrations detected in sub-slab soil gas were compared to the EPA residential target sub-slab soil gas screening levels from the VISL calculator, and indoor air and outdoor air concentrations were compared to EPA residential air RSLs. For both the air RSLs and sub-slab soil gas screening levels from the VISL calculator, risk-based screening concentrations were based upon the most conservative value for either a cancer or non-cancer endpoint.

Based on risk-based screening concentrations, COPCs identified at the O'Donovan AFRC in association with AFRC Albany Site 4 included the following:

- 1,1-Dichloroethane and PCE in groundwater

- 1,2,4-Trichlorobenzene, benzyl chloride, bromodichloromethane, chloroform, naphthalene, and TCE in sub-slab soil gas of the O'Donovan building

- 1,2-Dichloroethane, benzene, carbon tetrachloride, chloroform, ethylbenzene, methylene chloride, TCE, and total xylenes in indoor air of the O'Donovan building

- Benzene in sub-slab soil gas of the former NOSC building

- Benzene and chloroform in indoor air of the former NOSC building

- 1,2-Dichloroethane, benzene, chloroform, and ethylbenzene in outdoor air.

2.9.1.2 Exposure Assessment

The exposure assessment evaluates all receptor populations that are currently or are reasonably anticipated to be exposed to COPCs at the site based upon current land use and zoning and reasonably anticipated future land use. Even though the O'Donovan AFRC is vacant, current use receptors were identified based upon re-use of the AFRC in its current condition. These receptors included workers/personnel within the onsite buildings, onsite construction and utility workers, and site visitors. Current use receptors were also the expected future use receptors. As there is a possibility that the AFRC may be re-developed for other commercial uses or other uses allowed within the current zoning for the AFRC, future use receptors included construction workers who may be present during construction and re-development activities. In addition, hypothetical adult and child residents were considered in the event of a future residential scenario.

The following exposure pathways were quantitatively evaluated in the HHRA:

- Workers/personnel within onsite buildings and hypothetical adult and child residents exposed to groundwater used as a potable water supply. The evaluation of groundwater as a potable water supply provided a protective evaluation of any construction/utility worker contact with groundwater.

- Current and future workers/personnel and visitors within the current onsite buildings and future workers/personnel, residents, and visitors exposed to indoor air.

2.9.1.3 Toxicity Assessment

The human health toxicity assessment quantified the relationship between estimated exposure (dose) to a COPC and the increased likelihood of adverse effects. During the toxicity assessment, non-carcinogenic and carcinogenic effects were considered. The tapwater RSL for PCE is based upon a non-cancer hazard quotient of 0.1, while the tapwater RSL for 1,1-dichloroethane (2.8 µg/L) is based upon a cancer risk of 10^{-6}. For both the air RSLs and sub-slab soil gas screening levels from the VISL calculator, risk-based screening concentrations were based upon the most conservative value for either a cancer or non-cancer endpoint.

Carcinogenic and non-carcinogenic risks were evaluated for receptors on a cumulative basis. Risk results were then compared to the EPA's acceptable risk range for carcinogens (from 1×10^{-4} to 1×10^{-6}) and threshold HI of 1.0 for non-carcinogens.

For groundwater, only one detection of PCE (4.3 µg/L) and one detection of 1,1-dichloroethane (3.1 µg/L), both at MW-2, were detected above EPA tapwater RSLs in November 2015 only. Concentrations in April 2016 had declined to below tapwater RSLs. The maximum detected concentration of PCE detected during April 2016 was below a non-cancer level of concern of 1 and was therefore not a concern for human health. The maximum detected concentration of 1,1-dichloroethane (November 2015 only) marginally exceeded the tapwater RSL, which would result in a cancer risk level of approximately $1x10^{-6}$. This cancer risk was at the lower end of the EPA acceptable cancer risk range of 10^{-4} to 10^{-6}, which revealed that 1,1-dichloroethane would not be a concern for human health.

None of the sub-slab soil gas COPCs for the residential or industrial exposure scenarios were considered COPCs in groundwater. Additionally, none of the sub-slab soil gas COPCs were detected in groundwater. This revealed that the sub-slab soil gas COPCs are not a result of VI but other potential sources. While PCE was detected in sub-slab soil gas samples in both buildings, concentrations were below risk-based screening levels. While TCE was detected in the duplicate sub-slab soil gas sample collected within the boiler room of the O'Donovan building at a concentration above the EPA residential target sub-slab soil gas screening level from the VISL calculator, TCE was not detected in the primary sub-slab soil gas sample collected from the boiler room. In addition, TCE was not detected in indoor air samples collected within the boiler room, indicating that TCE was not migrating through the slab and impacting indoor air. This revealed that there are no future human health concerns for VI from groundwater to air within the buildings based upon sub-slab soil gas results.

For indoor and outdoor air, none of the COPCs for the residential or industrial exposure scenarios were considered COPCs in groundwater. TCE was detected at one indoor air location within the O'Donovan building (SS-3) at a concentration above the residential use screening criteria and was, therefore, identified as a COPC for the residential scenario. However, TCE was not detected in sub-slab soil gas at co-located sample SS-3, indicating that the indoor air concentration detected at SS-3 was not a result of VI. Therefore, based on indoor air results, there were no current human health concerns for VI from groundwater to air within the O'Donovan and former NOSC buildings. Additionally, there were no current human health concerns for VI from groundwater to outdoor air at the site.

2.9.2 Risk Summary – Human Health and Ecological

The risk screening determined that there were no unacceptable human health risks for current and hypothetical future receptors' exposure to groundwater COPCs associated with AFRC Albany Site 4. Additionally, there were no unacceptable human health concerns for current and hypothetical future receptors' exposure from VI of VOCs from groundwater to indoor air.

A screening-level ecological risk assessment was deemed not necessary for AFRC Albany Site 4 as no threatened or endangered species have been reported at the Site and there are no wetlands, sensitive environments, or aquatic receptors at or adjacent to the Site. Potential ecological

receptors at the Site are limited, as the majority of the Site is covered with hardscapes including asphalt, concrete, and buildings, with little to no vegetation.

2.10 DOCUMENTATION OF SIGNIFICANT CHANGES FROM THE PREFERRED ALTERNATIVE IN THE PROPOSED PLAN

There are no changes in this ROD to the No Action determination for AFRC Albany Site 4 presented in the Proposed Plan (EA 2017b).

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3. RESPONSIVENESS SUMMARY

The final component of the ROD is the Responsiveness Summary. The purpose of the Responsiveness Summary is to provide a summary of the public's comments, concerns, and questions about the proposed remedial decision at AFRC Albany Site 4 and the Army's responses to those concerns.

The Army selected No Action as the remedy for AFRC Albany Site 4, with concurrence from the NYSDEC and NYSDOH.

The Army held a public meeting on 24 October 2017 (see Attachment B for the Public Notice, a copy of the Sign-In Sheet, and copies of slides from the presentation) to formally present the preferred No Action remedy identified in the Proposed Plan and to answer questions and receive comments. The Army did not receive written comments during the public comment period (16 October 2017 – 14 November 2017), and no questions were raised during the Public Meeting.

3.1 TECHNICAL AND LEGAL ISSUES

No technical or legal issues have been identified for AFRC Albany Site 4 with respect to this ROD.

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4. REFERENCES

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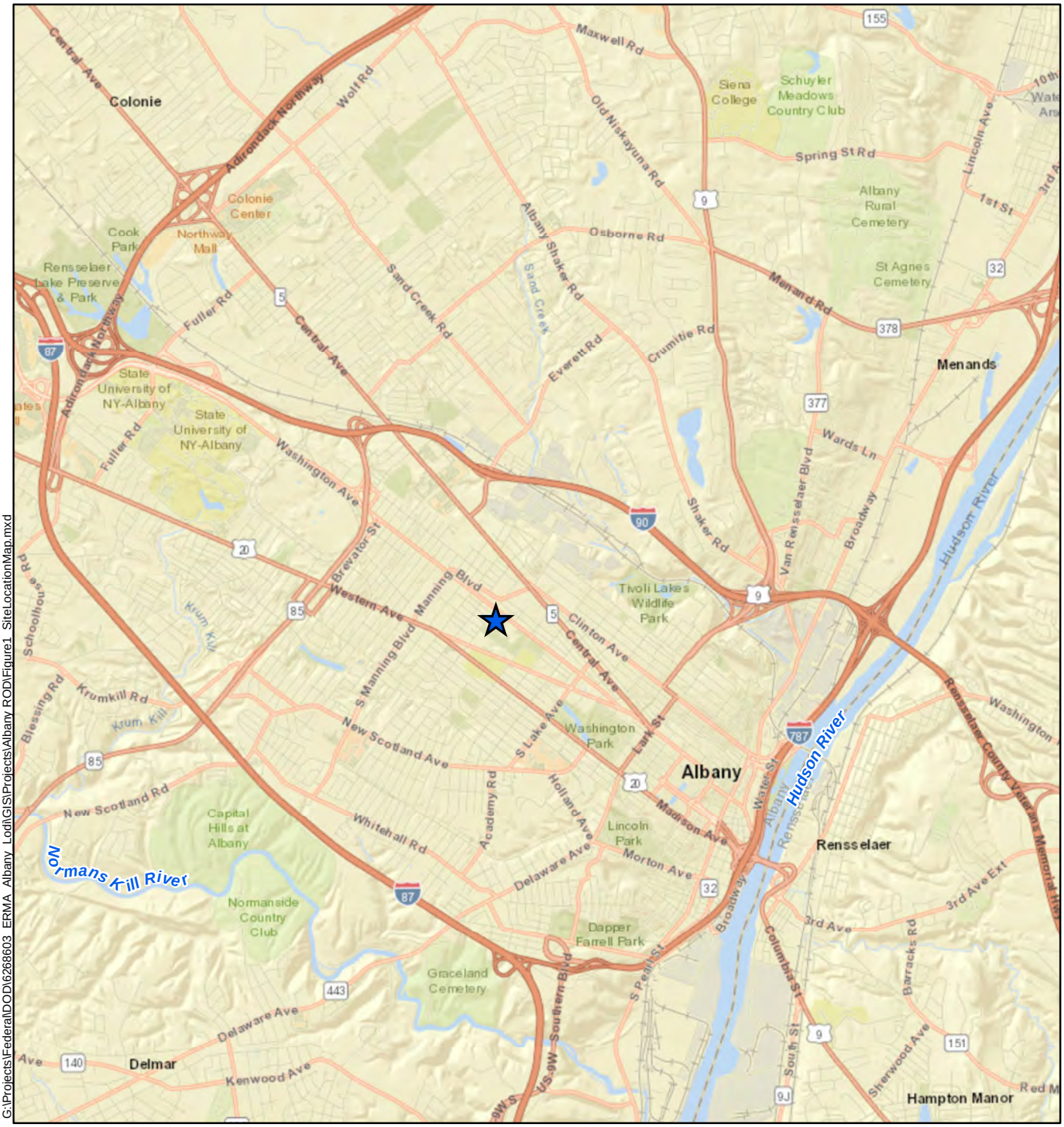

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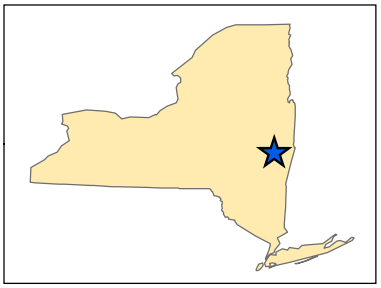

Legend

★ Site Location

0 0.5 1 2
Miles

1 inch = 1 miles

N

Figure 1
Site Location Map
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet

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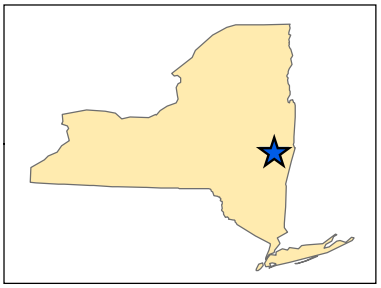

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Fence
- Former Wash Rack
- Former Oil Water Separator
- Former Trench Drain

0 50 100 200
Feet

1 inch = 100 feet

N

Figure 2
Site Layout
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet

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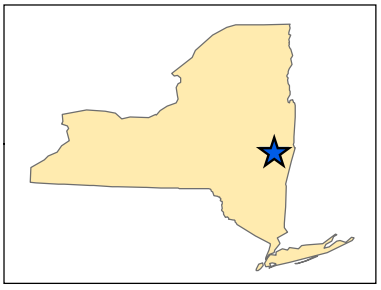

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Fence
- Oil Water Separator
- Former Wash Rack
- Former Trench Drain

0 50 100 200
Feet

1 inch = 100 feet

N

Figure 3
October 2006 Remedial Action
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Source: EA 2006

Groundwater Analytical Results

SP-5	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-6	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	1.9

SP-10	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-7	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-8	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-9	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	2.4
Ethylbenzene	0.77 J

SP-4	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	1.8
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-3	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	5
1,2-Dichloroethane	ND
Ethylbenzene	ND

SP-1	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	0.50 J
Ethylbenzene	ND

SP-2	
VOC	Groundwater Concentration (µg/L)
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
Ethylbenzene	ND

Analyte	EPA Tapwater RSL (µg/L)	EPA MCL (µg/L)
1,1-Dichloroethane	2.8	NSL
1,2-Dichloroethane	0.17	5
Ethylbenzene	1.5	700

Concentrations exceeding EPA Tapwater RSL are red

Soil Gas, Sub-Slab Soil Gas, and Indoor Air Analytical Results

SG-8 / Duplicate	
VOC	Soil Gas Concentration (µg/m3)
Benzene	1.6 / 1.9
Carbon Tetrachloride	ND
PCE	240 / 360
TCE	ND

SS-1	
VOC	Sub-Slab Vapor Concentration (µg/m3)
Benzene	ND
Carbon Tetrachloride	ND
PCE	ND
TCE	ND

AA-1	
VOC	Ambient Air Concentration (µg/m3)
Benzene	0.39
Carbon Tetrachloride	0.39
PCE	ND
TCE	ND

SG-5	
VOC	Soil Gas Concentration (µg/m3)
Benzene	3.1
Carbon Tetrachloride	0.32
PCE	3.6
TCE	ND

SG-4	
VOC	Soil Gas Concentration (µg/m3)
Benzene	1.6
Carbon Tetrachloride	0.67
PCE	3.6
TCE	ND

IA-1	
VOC	Indoor Air Concentration (µg/m3)
Benzene	ND
Carbon Tetrachloride	0.59
PCE	ND
TCE	ND

IA-2	
VOC	Indoor Air Concentration (µg/m3)
Benzene	0.65
Carbon Tetrachloride	0.6
PCE	ND
TCE	ND

SG-1	
VOC	Soil Gas Concentration (µg/m3)
Benzene	1.8
Carbon Tetrachloride	0.59
PCE	ND
TCE	ND

VOC	Air (THQ = 0.1; soil gas/sub-slab vapor attenuation factor of 0.03)			
	Residential Air		Industrial Air	
	Soil Gas / Sub-Slab Soil Gas VISL (µg/m3)	Indoor Air RSL (µg/m3)	Soil Gas / Sub-Slab Soil Gas VISL (µg/m3)	Indoor Air RSL (µg/m3)
Benzene	12	0.36	52	1.6
Carbon Tetrachloride	16	0.47	68	2
PCE	140	4.2	580	18
TCE	7	0.21	29	0.88

Concentrations exceeding EPA Residential RSLs are red

Concentrations exceeding EPA Industrial RSLs highlighted in yellow

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Soil Boring / Temporary Well
- Soil Vapor Sample Location
- Sub-Slab/Indoor Air Sample Location
- Outdoor Ambient Air Location

Note: Screening levels based on EPA regional screening levels (updated May 2016).

Soil gas and sub-slab soil gas VISLs based on EPA Industrial Air RSLs divided by an attenuation factor of 0.03 for shallow/sub-slab soil.

Only those analytes detected above applicable screening levels at one or more locations are presented.

Groundwater results are reported in micrograms per liter (µg/L).
Sub-slab vapor, soil gas, indoor air, and outdoor air results are reported in micrograms per cubic meter (µg/m3).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
MCL = Maximum contaminant level
ND = Not detected
PCE = Tetrachloroethene
RSL = Regional Screening Level
TCE = Trichloroethene
THQ = Target hazard quotient
VISL = Vapor intrusion screening level
VOC = Volatile organic compound

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from PARS Environmental Inc. 2011

N

0 100 200
Feet

1 inch = 100 feet

Figure 4
2011 Site Inspection Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

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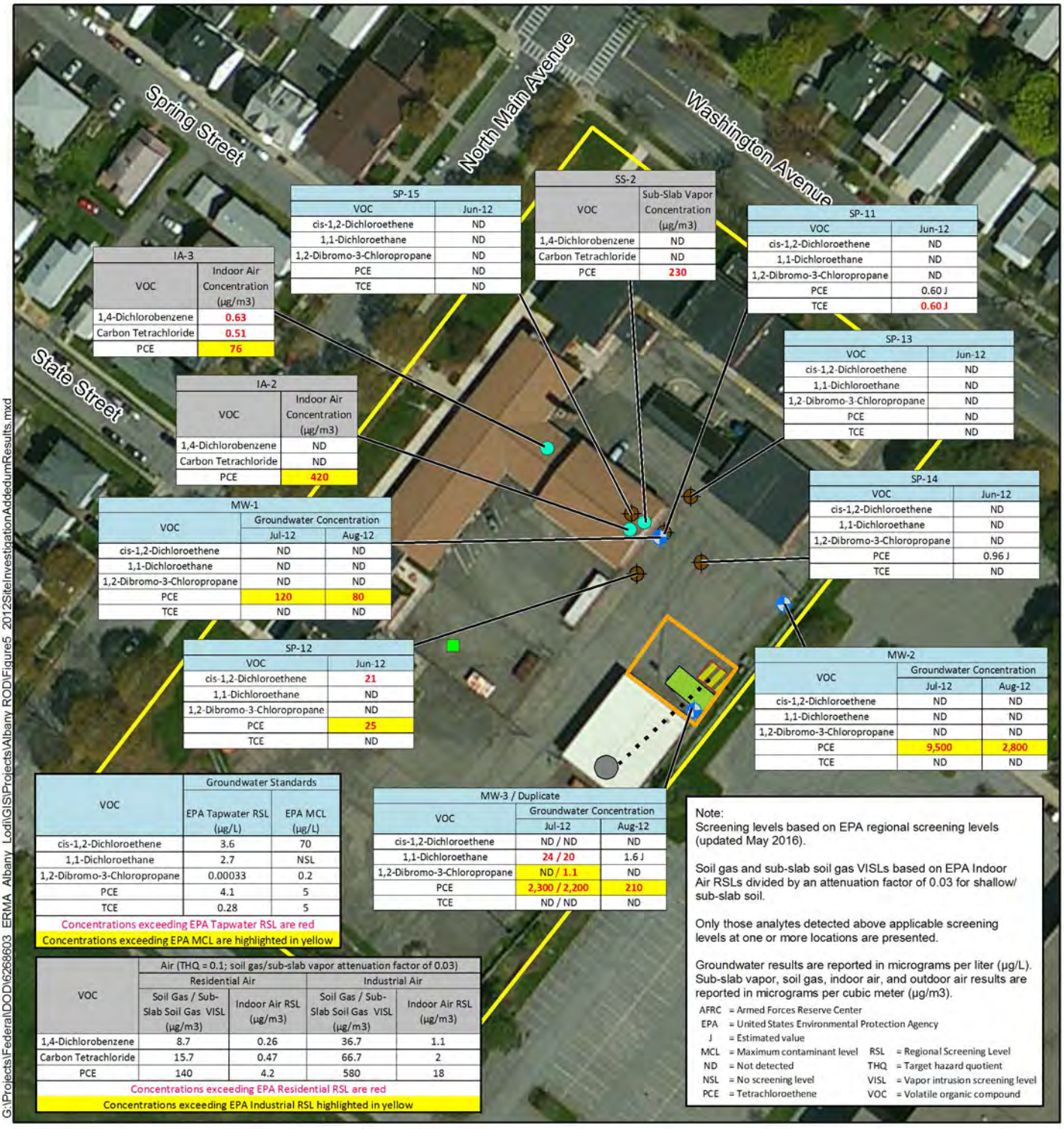

SP-15	
VOC	Jun-12
cis-1,2-Dichloroethene	ND
1,1-Dichloroethane	ND
1,2-Dibromo-3-Chloropropane	ND
PCE	ND
TCE	ND

SS-2	
VOC	Sub-Slab Vapor Concentration (µg/m3)
1,4-Dichlorobenzene	ND
Carbon Tetrachloride	ND
PCE	230

SP-11	
VOC	Jun-12
cis-1,2-Dichloroethene	ND
1,1-Dichloroethane	ND
1,2-Dibromo-3-Chloropropane	ND
PCE	0.60 J
TCE	0.60 J

IA-3	
VOC	Indoor Air Concentration (µg/m3)
1,4-Dichlorobenzene	0.63
Carbon Tetrachloride	0.51
PCE	76

SP-13	
VOC	Jun-12
cis-1,2-Dichloroethene	ND
1,1-Dichloroethane	ND
1,2-Dibromo-3-Chloropropane	ND
PCE	ND
TCE	ND

IA-2	
VOC	Indoor Air Concentration (µg/m3)
1,4-Dichlorobenzene	ND
Carbon Tetrachloride	ND
PCE	420

SP-14	
VOC	Jun-12
cis-1,2-Dichloroethene	ND
1,1-Dichloroethane	ND
1,2-Dibromo-3-Chloropropane	ND
PCE	0.96 J
TCE	ND

MW-1		
VOC	Groundwater Concentration	
	Jul-12	Aug-12
cis-1,2-Dichloroethene	ND	ND
1,1-Dichloroethane	ND	ND
1,2-Dibromo-3-Chloropropane	ND	ND
PCE	120	80
TCE	ND	ND

SP-12	
VOC	Jun-12
cis-1,2-Dichloroethene	21
1,1-Dichloroethane	ND
1,2-Dibromo-3-Chloropropane	ND
PCE	25
TCE	ND

MW-2		
VOC	Groundwater Concentration	
	Jul-12	Aug-12
cis-1,2-Dichloroethene	ND	ND
1,1-Dichloroethene	ND	ND
1,2-Dibromo-3-Chloropropane	ND	ND
PCE	9,500	2,800
TCE	ND	ND

VOC	Groundwater Standards	
	EPA Tapwater RSL (µg/L)	EPA MCL (µg/L)
cis-1,2-Dichloroethene	3.6	70
1,1-Dichloroethane	2.7	NSL
1,2-Dibromo-3-Chloropropane	0.00033	0.2
PCE	4.1	5
TCE	0.28	5

Concentrations exceeding EPA Tapwater RSL are red

Concentrations exceeding EPA MCL are highlighted in yellow

MW-3 / Duplicate		
VOC	Groundwater Concentration	
	Jul-12	Aug-12
cis-1,2-Dichloroethene	ND / ND	ND
1,1-Dichloroethane	24 / 20	1.6 J
1,2-Dibromo-3-Chloropropane	ND / 1.1	ND
PCE	2,300 / 2,200	210
TCE	ND / ND	ND

VOC	Air (THQ = 0.1; soil gas/sub-slab vapor attenuation factor of 0.03)			
	Residential Air		Industrial Air	
	Soil Gas / Sub-Slab Soil Gas VISL (µg/m3)	Indoor Air RSL (µg/m3)	Soil Gas / Sub-Slab Soil Gas VISL (µg/m3)	Indoor Air RSL (µg/m3)
1,4-Dichlorobenzene	8.7	0.26	36.7	1.1
Carbon Tetrachloride	15.7	0.47	66.7	2
PCE	140	4.2	580	18

Concentrations exceeding EPA Residential RSL are red

Concentrations exceeding EPA Industrial RSL highlighted in yellow

Note:
Screening levels based on EPA regional screening levels (updated May 2016).

Soil gas and sub-slab soil gas VISLs based on EPA Indoor Air RSLs divided by an attenuation factor of 0.03 for shallow/ sub-slab soil.

Only those analytes detected above applicable screening levels at one or more locations are presented.

Groundwater results are reported in micrograms per liter (µg/L). Sub-slab vapor, soil gas, indoor air, and outdoor air results are reported in micrograms per cubic meter (µg/m3).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
MCL = Maximum contaminant level
ND = Not detected
NSL = No screening level
PCE = Tetrachloroethene
RSL = Regional Screening Level
THQ = Target hazard quotient
VISL = Vapor intrusion screening level
VOC = Volatile organic compound

0 50 100 200
Feet

1 inch = 100 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Soil Boring / Temporary Well
- Monitoring Well
- Sub-Slab/Indoor Air Sample Location
- Outdoor Ambient Air Location

Figure 5
2013 Site Investigation Addendum Analytical Resuls
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from PARS Environmental Inc. 2013

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SV-13	
VOC	Soil Gas Concentration (µg/m³)
Benzene	1.37 J
Chloroform	(<0.49 U)
PCE	0.27 JQ
TCE	(<0.16 U)

SV-5	
VOC	Soil Gas Concentration (µg/m³)
Benzene	1.44
Chloroform	(<0.24 U)
PCE	<0.2 U)
TCE	(0.08 U)

SV-4	
VOC	Soil Gas Concentration (µg/m³)
Benzene	11.2
Chloroform	(<0.24 U)
PCE	0.88
TCE	1.45

SV-17	
VOC	Soil Gas Concentration (µg/m³)
Benzene	15
Chloroform	(<0.61 U)
PCE	(<0.54 U)
TCE	0.97

SV-15	
VOC	Soil Gas Concentration (µg/m³)
Benzene	43.8
Chloroform	12.2
PCE	1.36
TCE	1.88

SV-6	
VOC	Soil Gas Concentration (µg/m³)
Benzene	3.51
Chloroform	5.86
PCE	<0.2 U)
TCE	(0.08 U)

SV-14	
VOC	Soil Gas Concentration (µg/m³)
Benzene	30.7
Chloroform	(<1.22 U)
PCE	1.02 U
TCE	9.14

SV-8	
VOC	Soil Gas Concentration (µg/m³)
Benzene	30.7
Chloroform	6.35
PCE	(<2.03 U)
TCE	23.1

SV-12		
VOC	Soil Gas Concentration (µg/m3)	
	Mar-13	Apr-13
Benzene	26.5 / 35.5	39.6
Chloroform	3.66 J / 4.88	5.86 J
PCE	(<1.7 U) / 8.14	4.07 JQ
TCE	9.14 / 90.3	(<1.61 U)

SV-3	
VOC	Soil Gas Concentration (µg/m³)
Benzene	18.8
Chloroform	(<0.81 U)
PCE	2.03
TCE	11.3

SV-9	
VOC	Soil Gas Concentration (µg/m³)
Benzene	39.9
Chloroform	(<1.1 U)
PCE	0.95
TCE	(<0.38 U)

SV-2	
VOC	Soil Gas Concentration (µg/m³)
Benzene	34.2
Chloroform	(<0.24 U)
PCE	1.97
TCE	7.52

SV-10	
VOC	Soil Gas Concentration (µg/m³)
Benzene	26.5
Chloroform	(<0.24 U)
PCE	1.22
TCE	(<0.08 U)

SV-7	
VOC	Soil Gas Concentration (µg/m³)
Benzene	1.18
Chloroform	16.6
PCE	1.02
TCE	29

SV-1	
VOC	Soil Gas Concentration (µg/m³)
Benzene	12.8
Chloroform	(<1.22 U)
PCE	2.03
TCE	<0.4 U)

VOC	EPA RSLs (THQ = 0.1; soil gas/sub-slab vapor attenuation factor of 0.03)			
	Residential Air		Industrial Air	
	Sub-Slab Vapor (µg/m³)	Indoor Air (µg/m³)	Sub-Slab Vapor (µg/m³)	Indoor Air (µg/m³)
1,1,2-Trichloroethane	0.7	0.021	2.9	0.088
Benzene	12	0.36	52	1.6
Chloroform	4.1	0.12	18	0.53
PCE	140	4.2	580	18
TCE	7	0.21	29	0.88

Concentrations exceeding EPA Residential RSL are red

Concentrations exceeding EPA Industrial RSL highlighted in yellow

Note:
Soil gas VISLs based on EPA Indoor Air RSLs divided by an attenuation factor of 0.03 for shallow soil.

Only those analytes detected above applicable screening levels at one or more locations are presented.

All concentrations are reported in micrograms per cubic meter (µg/m3).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
PCE = Tetrachloroethene
RSL = Regional Screening Level
TCE = Trichloroethene
THQ = Target hazard quotient
VISL = Vapor intrusion screening level
VOC = Volatile organic compound
U = Not detected

0 50 100 200
Feet

1 inch = 100 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Soil Gas Location

Figure 6
2013 Site Investigation
Soil Gas Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from Shaw Environmental 2013

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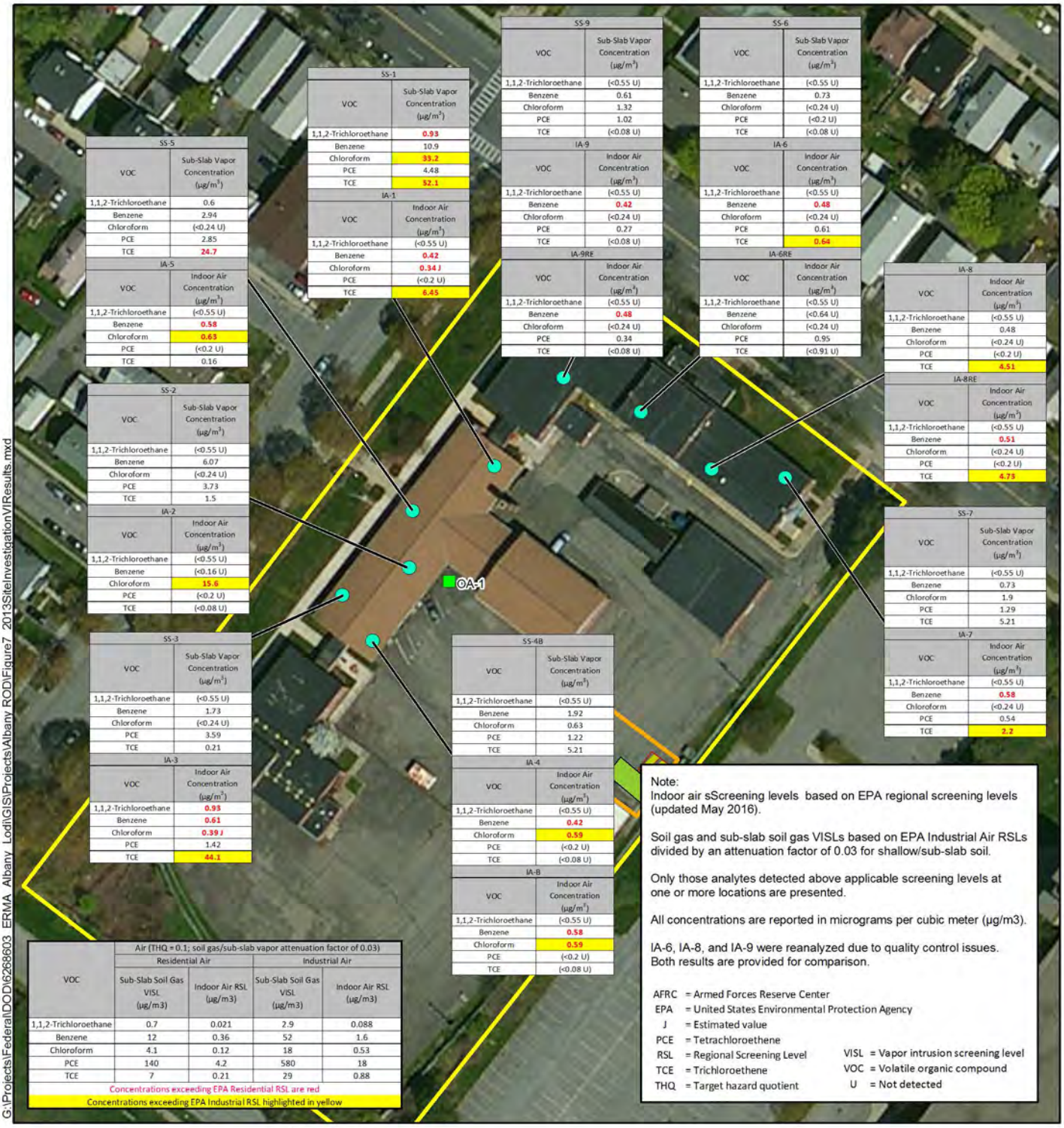
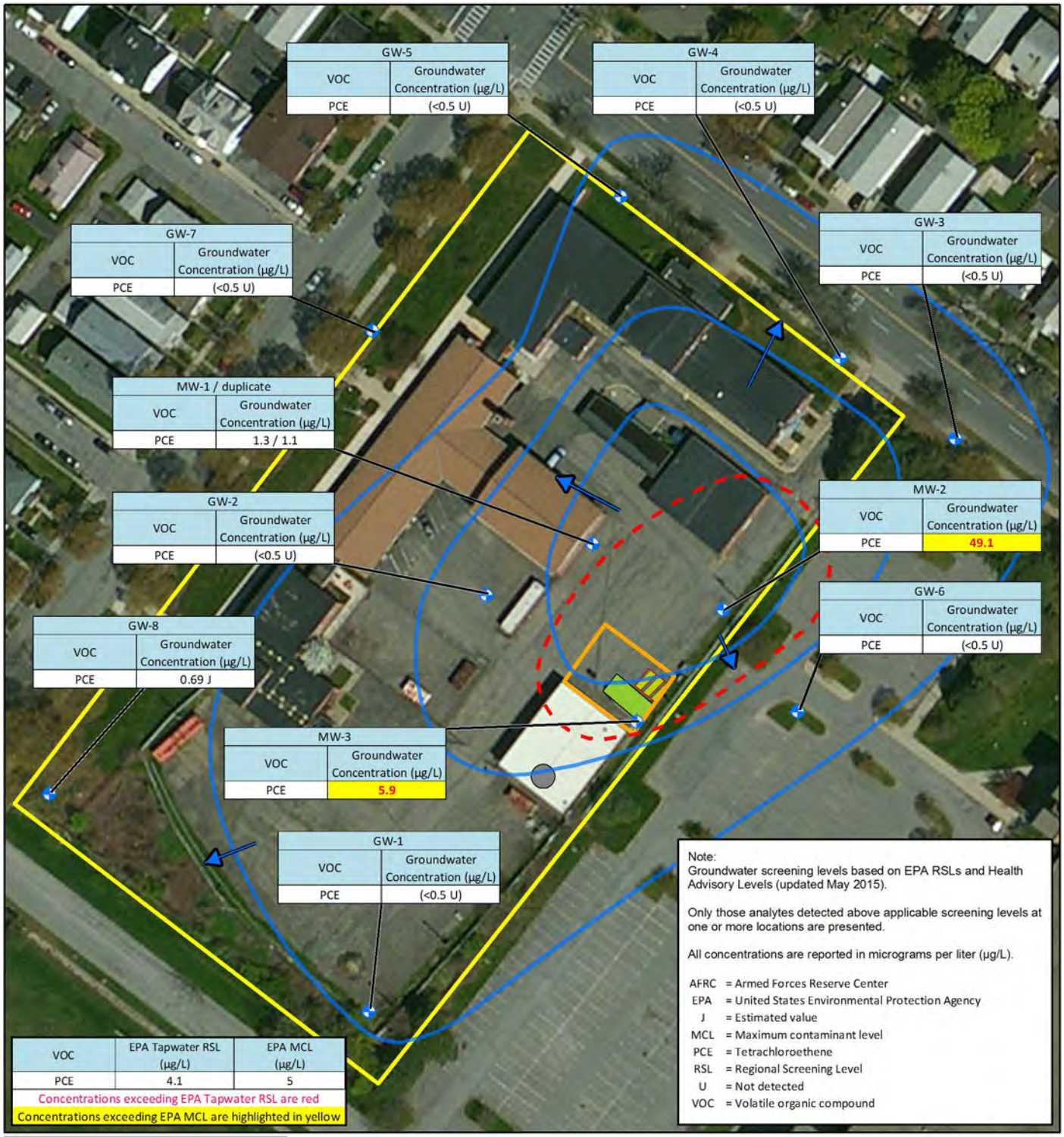


Figure 7
2013 Site Investigation
Vapor Intrusion Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from Shaw Environmental 2013



0 50 100 200
Feet

1 inch = 100 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Existing Well
- Interpreted PCE Plume (5 µg/L)
- Groundwater Contour April 2013
- Groundwater Flow Direction

Figure 8
2013 Site Investigation
Groundwater Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from Shaw Environmental 2013

GW-7	
VOC	Groundwater Concentration (µg/L)
	Nov-15
1,1-Dichloroethane	0.89 J
PCE	(<0.5 U)

GW-5	
VOC	Groundwater Concentration (µg/L)
	Nov-15
1,1-Dichloroethane	(<0.25 U)
PCE	(<0.5 U)

GW-3		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	(<0.25 U)	(<0.25 U)
PCE	(<0.5 U)	(<0.5 U)

GW-4		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	(<0.25 U)	(<0.25 U)
PCE	(<0.5 U)	(<0.5 U)

MW-1		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	1.5	(<0.25 U)
PCE	0.61 J	0.42 J

GW-2	
VOC	Groundwater Concentration (µg/L)
	Nov-15
1,1-Dichloroethane	(<0.25 U)
PCE	(<0.5 U)

MW-2 / duplicate		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	3.1 J / 2.8 J	(<0.25 U)
PCE	4.3 J / 4.1 J	2.1 / 2

MW-9		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	(<0.25 U)	(<0.25 U)
PCE	(<0.5 U)	(<0.5 U)

GW-6	
VOC	Groundwater Concentration (µg/L)
	Nov-15
1,1-Dichloroethane	0.39 J
PCE	(<0.5 U)

MW-10		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	(<0.25 U)	(<0.25 U)
PCE	(<0.5 U)	(<0.5 U)

MW-3		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	2.1 JD	0.44 J
PCE	(<5 U)	(<0.5 U)

GW-8		
VOC	Groundwater Concentration (µg/L)	
	Nov-15	Apr-16
1,1-Dichloroethane	(<0.25 U)	(<0.25 U)
PCE	0.95 J	0.79 J

GW-1	
VOC	Groundwater Concentration (µg/L)
	Nov-15
1,1-Dichloroethane	(<0.25 U)
PCE	(<0.5 U)

VOC	EPA Tapwater RSL (µg/L)	EPA MCL (µg/L)
1,1-Dichloroethane	1.5	No screening level
PCE	4.1	5

Concentrations exceeding EPA Tapwater RSL are red

Note:
Groundwater screening levels based on EPA RSLs and Health Advisory Levels (updated May 2015).

Only those analytes detected above applicable screening levels at one or more locations are presented.

All concentrations are reported in micrograms per liter (µg/L).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
MCL = Maximum contaminant level
PCE = Tetrachloroethene
RSL = Regional Screening Level
U = Not detected
VOC = Volatile organic compound

0 50 100 200
Feet

1 inch = 100 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Existing Monitoring Well
- Newly Installed Monitoring Well

Figure 9
Remedial Investigation
Groundwater Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet

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Sub-Slab Soil Gas Analytical Results

SS-5	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<23 U)
Benzene	1.2 J
Benzyl Chloride	(<4 U)
Bromodichloromethane	12
Chloroform	320
Dibromochloromethane	(<6.6 U)
Naphthalene	(<16 U)
Trichloroethene	(<4.2 U)

SS-8	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<24 UJ)
Benzene	14
Benzyl Chloride	(<4.1 U)
Bromodichloromethane	(<5.3 U)
Chloroform	0.36 J
Dibromochloromethane	(<6.8 U)
Naphthalene	0.49 J
Trichloroethene	(<4.3 U)

SS-7	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<22 U)
Benzene	2.5
Benzyl Chloride	(<3.9 U)
Bromodichloromethane	(<5 U)
Chloroform	0.47 J
Dibromochloromethane	(<6.4 U)
Naphthalene	0.3 J
Trichloroethene	(<4 U)

SS-2	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	<24 UJ
Benzene	0.8 J
Benzyl Chloride	<4.2 U
Bromodichloromethane	0.92 J
Chloroform	85
Dibromochloromethane	<6.9 U
Naphthalene	0.51 J
Trichloroethene	<4.4 U

SS-3	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<23 U)
Benzene	1.6 J
Benzyl Chloride	(<4 U)
Bromodichloromethane	57
Chloroform	640
Dibromochloromethane	3.2 J
Naphthalene	(<16 U)
Trichloroethene	(<4.2 U)

SS-1	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<76 U)
Benzene	2.9 J
Benzyl Chloride	(<13 U)
Bromodichloromethane	(<17 U)
Chloroform	13
Dibromochloromethane	(<22 U)
Naphthalene	2.1 J
Trichloroethene	(<14 U)

SS-1-Dup	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	16 J
Benzene	5.2 J
Benzyl Chloride	4.6 J
Bromodichloromethane	(<31 U)
Chloroform	17 J
Dibromochloromethane	(<40 U)
Naphthalene	6.8 J
Trichloroethene	16 J

SS-4	
VOC	Sub-Slab Vapor Concentration ($\mu g/m^3$)
1,2,4-trichlorobenzene	(<22 UJ)
Benzene	0.59 J
Benzyl Chloride	(<3.9 U)
Bromodichloromethane	7.2
Chloroform	220
Dibromochloromethane	(<6.5 U)
Naphthalene	0.33 J
Trichloroethene	0.44 J

EPA Sub-Slab Soil Gas VISLs (THQ = 0.1; attenuation factor of 0.03)		
VOC	Residential RSL ($\mu g/m^3$)	Industrial RSL ($\mu g/m^3$)
1,2,4-trichlorobenzene	7	29
Benzene	12	52
Benzyl Chloride	1.9	8.3
Bromodichloromethane	2.5	11
Chloroform	4.1	18
Dibromochloromethane	No screening level	
Naphthalene	2.8	12
PCE	140	580
TCE	7	29
Concentrations exceeding EPA Residential RSL are red		
Concentrations exceeding EPA Industrial RSL highlighted in yellow		

Albany High School

Indoor Air Analytical Results

IA-2	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.21
Benzene	5
Carbon tetrachloride	0.43
Chloroform	0.32
Ethylbenzene	3.6
Methylene Chloride	17
Trichloroethene	(<0.17 U)
Xylenes, Total	13

IA-5	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.056 J
Benzene	0.58
Carbon tetrachloride	0.47
Chloroform	0.47
Ethylbenzene	0.13
Methylene Chloride	1.4
Trichloroethene	(<0.16 U)
Xylenes, Total	0.42

IA-7	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.052 J
Benzene	0.37
Carbon tetrachloride	0.46
Chloroform	0.15
Ethylbenzene	0.12 J
Methylene Chloride	1.3
Trichloroethene	(<0.16 U)
Xylenes, Total	0.43

IA-3	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.14 J
Benzene	4
Carbon tetrachloride	0.36 J
Chloroform	0.34
Ethylbenzene	2.7
Methylene Chloride	370
Trichloroethene	0.29 J
Xylenes, Total	10

IA-4	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.056 J
Benzene	0.89
Carbon tetrachloride	0.39
Chloroform	0.18
Ethylbenzene	0.43
Methylene Chloride	5.9
Trichloroethene	(<0.16 U)
Xylenes, Total	1.5

OA-1	
VOC	Outdoor Ambient Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.15 J
Benzene	1.8
Carbon tetrachloride	0.41
Chloroform	0.13 J
Ethylbenzene	1.4
Methylene Chloride	17
Trichloroethene	0.057 J
Xylenes, Total	4.9

IA-1	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	0.081 J
Benzene	6 J
Carbon tetrachloride	0.38
Chloroform	0.45
Ethylbenzene	4 J
Methylene Chloride	1.5
Trichloroethene	(<0.17 U)
Xylenes, Total	16 J

IA-Dup	
VOC	Indoor Air Concentration ($\mu g/m^3$)
1,2-dichloroethane	(<0.13 U)
Benzene	0.38 J
Carbon tetrachloride	0.37
Chloroform	0.56
Ethylbenzene	0.095 J
Methylene Chloride	0.28 J
Trichloroethene	(<0.17 U)
Xylenes, Total	0.27 J

EPA Indoor Air RSLs (THQ = 0.1)		
VOC	Residential RSL ($\mu g/m^3$)	Industrial RSL ($\mu g/m^3$)
1,2-dichloroethane	0.11	0.47
Benzene	0.36	1.6
Carbon tetrachloride	0.47	2
Chloroform	0.12	0.53
Ethylbenzene	1.1	4.9
Methylene Chloride	63	260
Trichloroethene	0.21	0.88
Xylenes, Total	10	44
PCE	4.2	18
Concentrations exceeding EPA Residential RSL are red		
Concentrations exceeding EPA Industrial RSL highlighted in yellow		

Albany High School

VICINITY MAP

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Sub-Slab Vapor/Indoor Air Sample Location
- Outdoor Air Sample Location

Note:
Indoor air screening levels based on EPA RSLs (updated May 2015).

Sub-slab soil gas VISLs based on EPA Indoor Air RSLs divided by an attenuation factor of 0.03 for shallow/sub-slab soil.

Only those analytes detected above applicable screening levels at one or more locations are presented.

All concentrations are reported in micrograms per cubic meter (µg/m3).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
PCE = Tetrachloroethene
RSL = Regional Screening Level
TCE = Trichloroethene
THQ = Target hazard quotient
VISL = Vapor intrusion screening level
VOC = Volatile organic compound
U = Not detected

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet
Data adapted from PARS Environmental Inc. 2011

N

0 100 200
Feet
1 inch = 120 feet

Figure 10
Remedial Investigation
Vapor Intrusion Analytical Results
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

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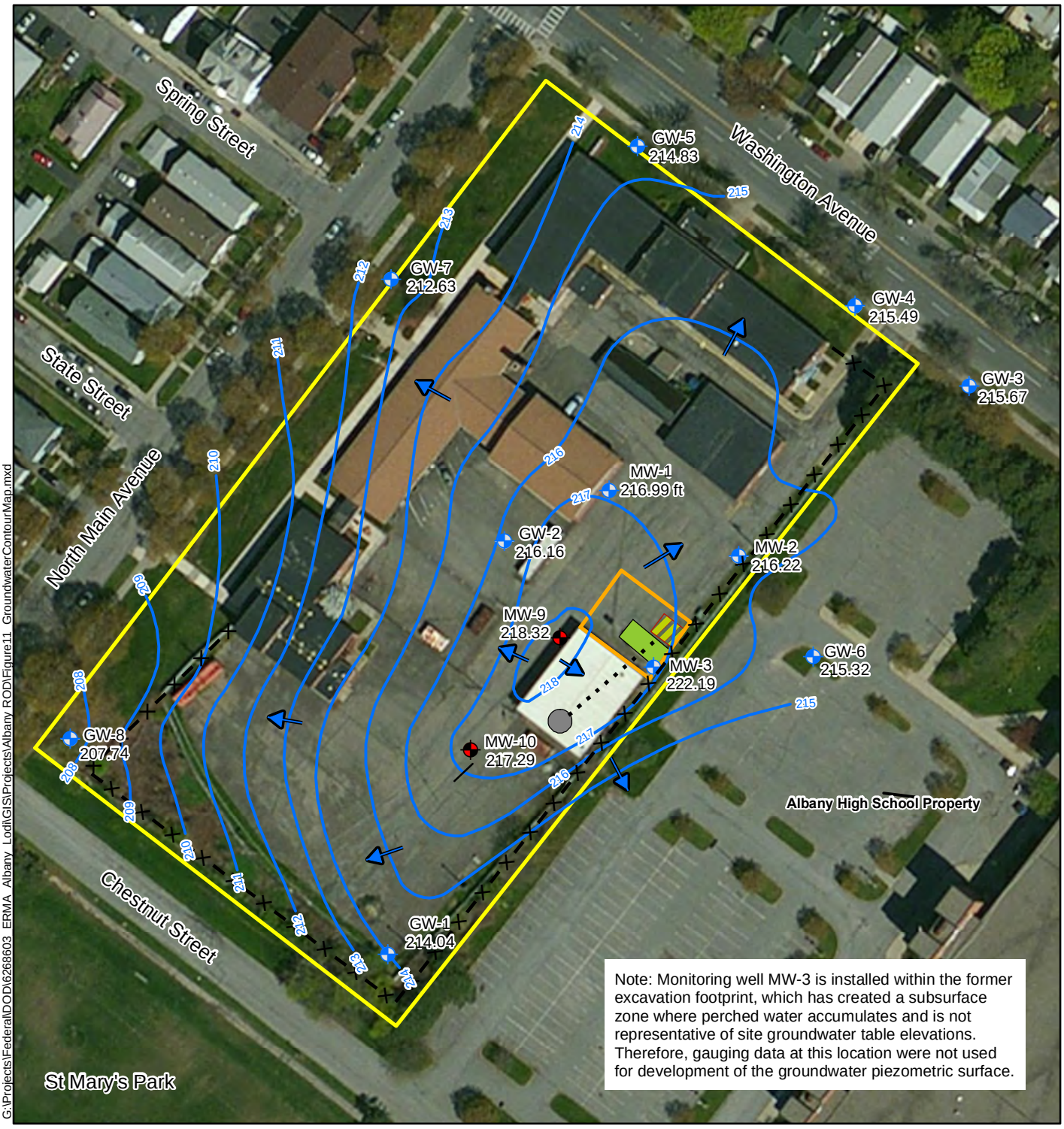

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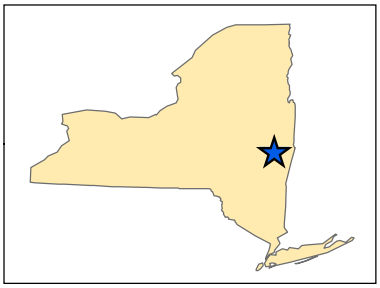


0 50 100 200
Feet

1 inch = 100 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Fence
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Existing Monitoring Well
- Newly Installed Monitoring Well
- Groundwater Contour November 2015
- Groundwater Flow Direction

Figure 11
November 2015 Groundwater Contour Map
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 State Plane New York East FIPS 3101 Feet

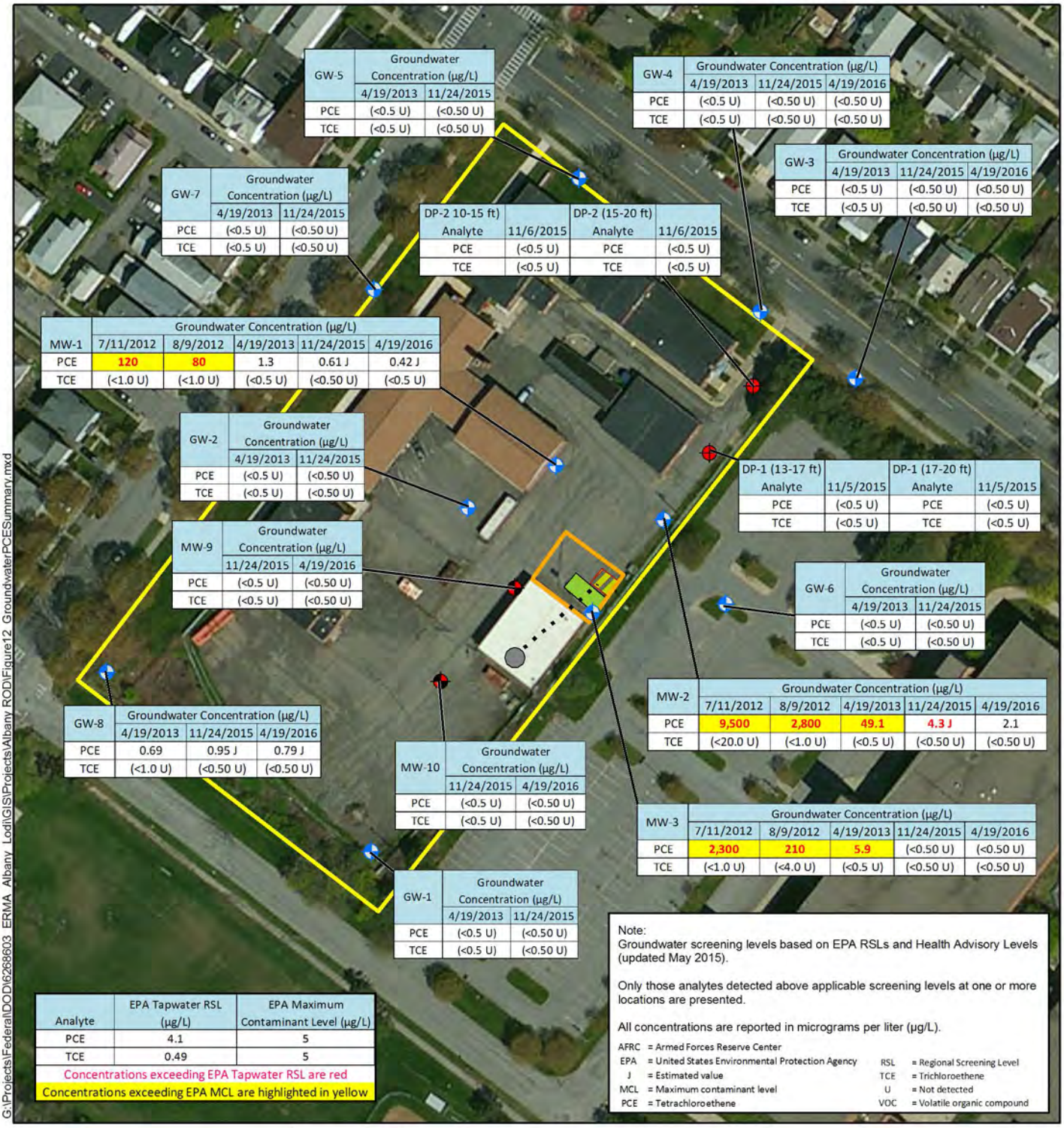
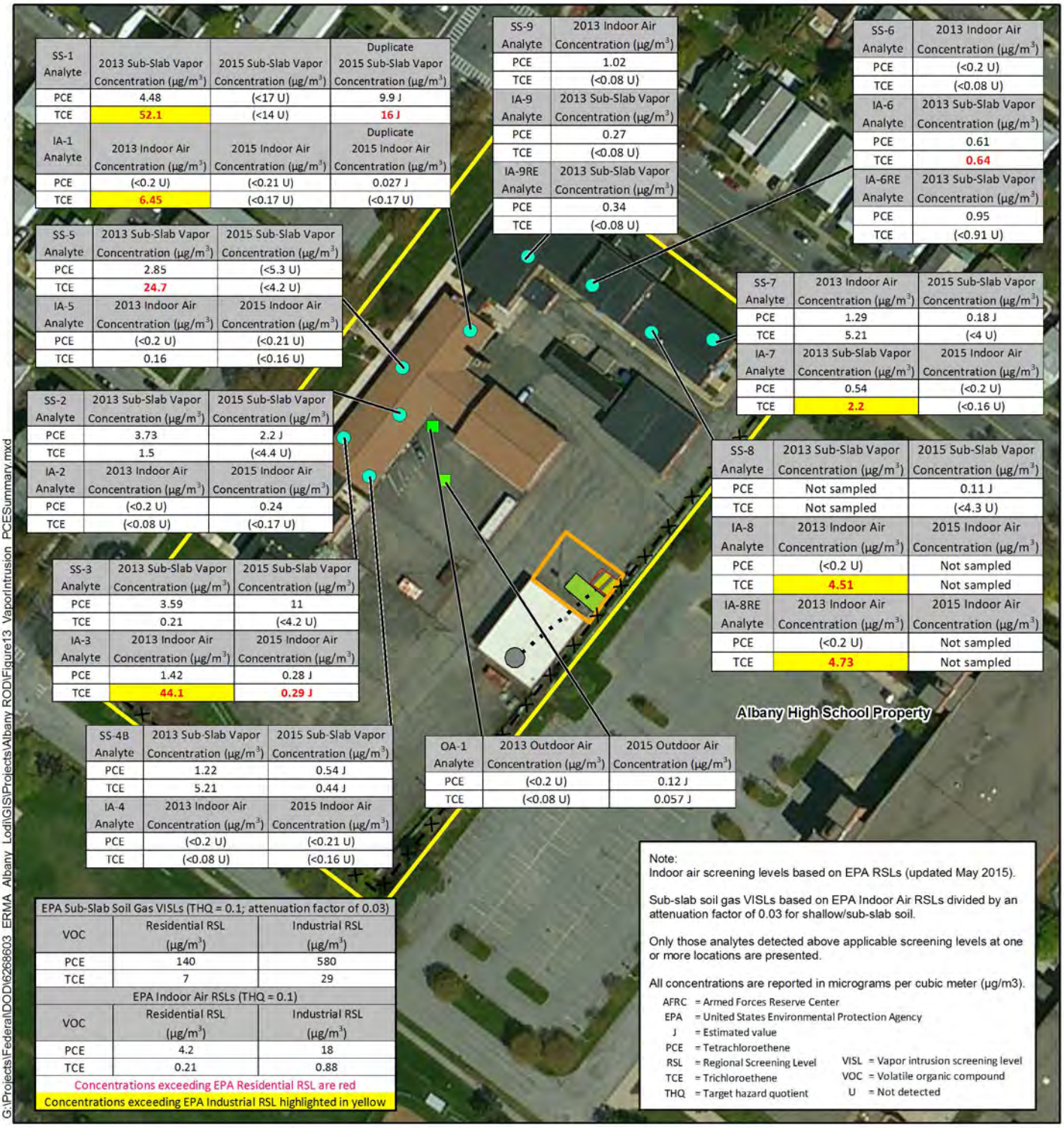


Figure 12
Groundwater Analytical Results Summary
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 StatePlane New York East FIPS 3101 Feet



SS-1 Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)	Duplicate 2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	4.48	(<17 U)	9.9 J
TCE	52.1	(<14 U)	16 J
IA-1 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**	**Duplicate 2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	(<0.21 U)	0.027 J
TCE	6.45	(<0.17 U)	(<0.17 U)

SS-9 Analyte	2013 Indoor Air Concentration (µg/m³)
PCE	1.02
TCE	(<0.08 U)
IA-9 Analyte	**2013 Sub-Slab Vapor Concentration (µg/m³)**
PCE	0.27
TCE	(<0.08 U)
IA-9RE Analyte	**2013 Sub-Slab Vapor Concentration (µg/m³)**
PCE	0.34
TCE	(<0.08 U)

SS-6 Analyte	2013 Indoor Air Concentration (µg/m³)
PCE	(<0.2 U)
TCE	(<0.08 U)
IA-6 Analyte	**2013 Sub-Slab Vapor Concentration (µg/m³)**
PCE	0.61
TCE	0.64
IA-6RE Analyte	**2013 Sub-Slab Vapor Concentration (µg/m³)**
PCE	0.95
TCE	(<0.91 U)

SS-5 Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	2.85	(<5.3 U)
TCE	24.7	(<4.2 U)
IA-5 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	(<0.21 U)
TCE	0.16	(<0.16 U)

SS-7 Analyte	2013 Indoor Air Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	1.29	0.18 J
TCE	5.21	(<4 U)
IA-7 Analyte	**2013 Sub-Slab Vapor Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	0.54	(<0.2 U)
TCE	2.2	(<0.16 U)

SS-2 Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	3.73	2.2 J
TCE	1.5	(<4.4 U)
IA-2 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	0.24
TCE	(<0.08 U)	(<0.17 U)

SS-8 Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	Not sampled	0.11 J
TCE	Not sampled	(<4.3 U)
IA-8 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	Not sampled
TCE	4.51	Not sampled
IA-8RE Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	Not sampled
TCE	4.73	Not sampled

SS-3 Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	3.59	11
TCE	0.21	(<4.2 U)
IA-3 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	1.42	0.28 J
TCE	44.1	0.29 J

SS-4B Analyte	2013 Sub-Slab Vapor Concentration (µg/m³)	2015 Sub-Slab Vapor Concentration (µg/m³)
PCE	1.22	0.54 J
TCE	5.21	0.44 J
IA-4 Analyte	**2013 Indoor Air Concentration (µg/m³)**	**2015 Indoor Air Concentration (µg/m³)**
PCE	(<0.2 U)	(<0.21 U)
TCE	(<0.08 U)	(<0.16 U)

OA-1 Analyte	2013 Outdoor Air Concentration (µg/m³)	2015 Outdoor Air Concentration (µg/m³)
PCE	(<0.2 U)	0.12 J
TCE	(<0.08 U)	0.057 J

EPA Sub-Slab Soil Gas VISLs (THQ = 0.1; attenuation factor of 0.03)		
VOC	Residential RSL (µg/m³)	Industrial RSL (µg/m³)
PCE	140	580
TCE	7	29
EPA Indoor Air RSLs (THQ = 0.1)		
VOC	Residential RSL (µg/m³)	Industrial RSL (µg/m³)
PCE	4.2	18
TCE	0.21	0.88

Concentrations exceeding EPA Residential RSL are red

Concentrations exceeding EPA Industrial RSL highlighted in yellow

Note:
Indoor air screening levels based on EPA RSLs (updated May 2015).

Sub-slab soil gas VISLs based on EPA Indoor Air RSLs divided by an attenuation factor of 0.03 for shallow/sub-slab soil.

Only those analytes detected above applicable screening levels at one or more locations are presented.

All concentrations are reported in micrograms per cubic meter (µg/m3).

AFRC = Armed Forces Reserve Center
EPA = United States Environmental Protection Agency
J = Estimated value
PCE = Tetrachloroethene
RSL = Regional Screening Level
TCE = Trichloroethene
THQ = Target hazard quotient
VISL = Vapor intrusion screening level
VOC = Volatile organic compound
U = Not detected

0 60 120 240
Feet

1 inch = 120 feet

N

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Fence
- Sub-Slab Vapor/Indoor Air Sample Location
- Outdoor Air Sample Location

Figure 13
Vapor Intrusion Analytical Results Summary
O'Donovan Armed Forces Reserve Center
Albany Site 4
Albany, NY

Map Date: 11/6/2017
Projection: NAD 1983 StatePlane New York East FIPS 3101 Feet

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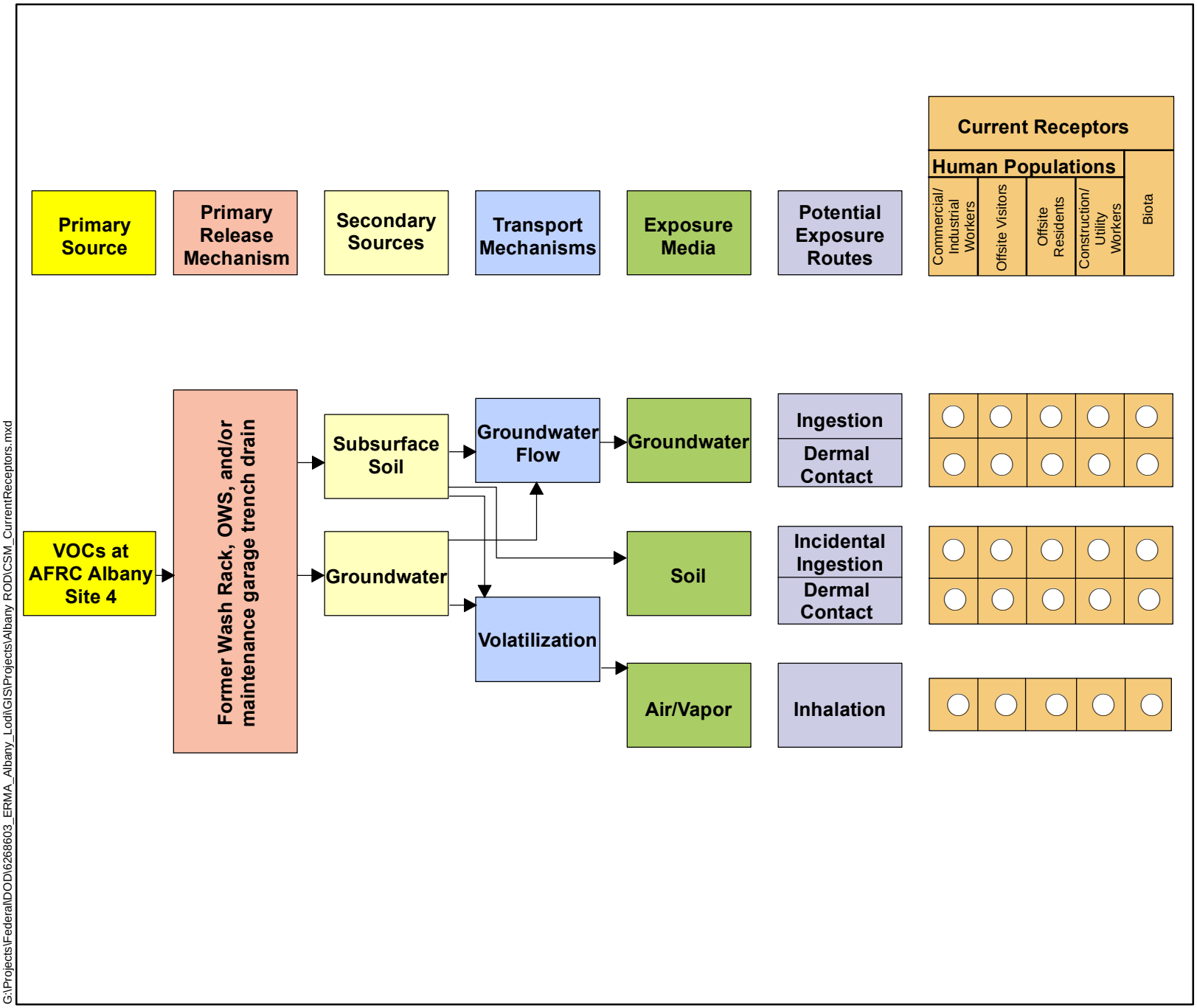
Attachment A

Conceptual Site Models



VICINITY MAP

Incomplete Pathway

Potentially Complete Source-Receptor Pathway

Complete and Significant Pathway

Map Date: 11/6/2017

Updated Conceptual Site Model: Current Receptors
O'Donovan Armed Forces Reserve Center Albany Site 4
Albany, NY

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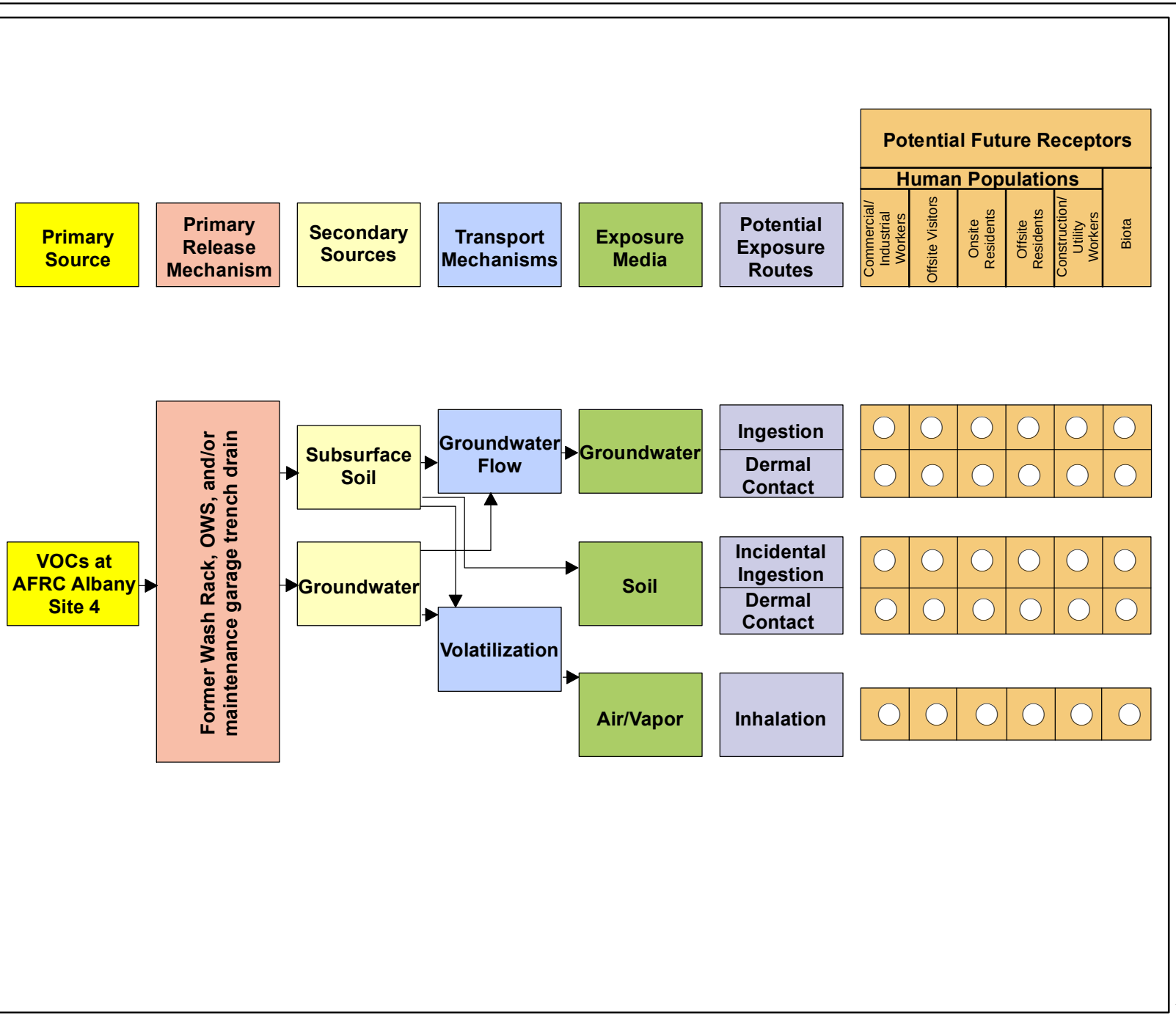

VICINITY MAP

○ Incomplete Pathway

◑ Potentially Complete Source-Receptor Pathway

● Complete and Significant Pathway

Map Date: 11/6/2017

Updated Conceptual Site Model: Future Receptors
O'Donovan Armed Forces Reserve Center Albany Site 4
Albany, NY

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Attachment B

Public Notice and Public Meeting Summary

PROPOSED PLAN FOR O'DONOVAN ARMED FORCES RESERVE CENTER ALBANY SITE 4

Introduction and Purpose

This Proposed Plan (PP) provides information necessary to allow the public to participate with the U.S. Department of the Army (Army) in the remedy selection process for the Major James J. O'Donovan Armed Forces Reserve Center ("O'Donovan AFRC") Albany Site 4 ("AFRC Albany Site 4"), Albany, New York. The O'Donovan AFRC is not included on the National Priorities List.

This PP is issued in accordance with Section 117 of CERCLA and Section 40 Code of Federal Regulations (CFR) 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). AFRC Albany Site 4 warrants No Action based on the results of the 2016 Remedial Investigation (RI) and Human Health Risk Assessment (HHRA), and the 2017 Feasibility Study. No adverse impacts to environmental media and no unacceptable human health or ecological risk have been identified, and the AFRC Albany Site 4 meets Unlimited Use/Unrestricted Exposure criteria. Therefore, the preferred remedy is No Action, which includes no further environmental investigation or remediation. Under the No Action alternative, no monitoring, evaluation, or remedial measures will be required.

Important Dates and Locations

Public Meeting: 24 October 2017 at 6:30 p.m.
The Army will hold a public meeting to explain the PP. Oral and written comments will be accepted at the meeting. The meeting will be held at the Pine Hills Branch of the Albany Library, 517 Western Avenue, Albany, New York, 12203.

Public Comment Period: 16 October 2017 – 14 November 2017.
The Army will accept written comments on the PP during the public comment period at the following address:

Deputy PAO/Command Information Chief
99th Regional Support Command
ATTN: SHAWN MORRIS
5231 South Scott Plaza
Joint Base MDL, NJ 08640

The Administrative Record/Information Repository, which contains information used in selecting the No Action Alternative, is available for public review at the following locations:

99th RSC HQ-DPW
Environmental Division
Joint Base McGuire, Dix, Lakehurst
5231 South Scott Plaza
JBMDL, New Jersey 08640
609-562-7661

Albany Public Library
Pine Hills Branch
517 Western Avenue
Albany, New York 12203
518-482-7911

Remedial Alternative: No Further Action

Site Background

The O'Donovan AFRC is located on a 3.5-acre parcel at 90 North Main Avenue in the City of Albany, Albany County, New York. The parcel is zoned for commercial use, and the reasonably anticipated future land use is commercial/industrial. The O'Donovan AFRC was first developed for use by the military in 1955 as a 100-man center for conducting U.S. Army Reserve (USAR) training. The O'Donovan AFRC contains separate USAR and U.S. Naval Reserve/Marine Corps Reserve centers, jointly referred to as AFRC. Personnel are no longer maintained at the O'Donovan AFRC. The former Naval Operations Support Center (NOSC) was vacated in 2007, while the O'Donovan building was vacated in August 2014.

Site Characteristics

AFRC Albany Site 4 is defined as the former vehicle wash rack and oil/water separator (OWS) that was located in the area immediately northeast of the Operations and Maintenance (O&M) building. Volatile organic compounds (VOCs), including tetrachloroethene (PCE) and/or trichloroethene (TCE), were historically detected at the O'Donovan AFRC in groundwater, soil gas, and indoor air at concentrations exceeding applicable regulatory thresholds. Three potential contributing sources were identified, including the former wash rack, OWS, and a former trench drain within the southernmost maintenance bay garage of the O&M building that drained to the OWS. The wash rack was closed and paved over in 1999. A remedial action consisting of limited soil excavation and abandonment of the OWS was conducted in 2005. Post-excavation soil analytical results indicated that the soil excavation was effective in removing potential subsurface soil VOC sources at AFRC Albany Site 4.

Remedial Investigation

An RI was conducted at the O'Donovan AFRC from 2015 to 2016 to further define the nature and extent of impacts resulting from historical operations at AFRC Albany Site 4. The RI included groundwater sampling at and along the boundary of the O'Donovan AFRC and a vapor intrusion investigation within the O'Donovan and former NOSC buildings. Based on the results of the RI, VOC concentrations in groundwater had declined to below U.S. Environmental Protection Agency (EPA) screening levels. In addition, VOCs related to AFRC Albany Site 4 were not detected at concentrations above EPA industrial or residential screening criteria in sub-slab soil gas and co-located indoor air sampling locations. Concentrations of VOCs related to AFRC Albany Site 4 found in groundwater, soil gas, and sub-slab soil gas are expected to continue to decline, as a source for these VOCs is not present.

Summary of Site Risks

A HHRA was conducted as part of the RI as required by the NCP at Section 300.430(d)(4) to determine whether exposure to site-related contaminants could adversely affect human health and determine the need for remedial action at the site if potential human health concerns were identified. The HHRA followed risk assessment methodology established by EPA for assessing risk to human health. The focus of the HHRA was on the possible human health effects that could occur under current or potential future use conditions in the event that no effort to restrict exposure was undertaken. Hypothetical residential exposure (adult and child) was evaluated as a conservative exposure scenario that would account for all expected receptor contact with the site.

The risk screening determined that there were no unacceptable human health risks for current and hypothetical future receptors' exposure to groundwater associated with AFRC Albany Site 4. Additionally, there were no unacceptable human health concerns for current and hypothetical future receptors' exposure from vapor intrusion of VOCs from groundwater to indoor air.

An ecological risk assessment was deemed not necessary for AFRC Albany Site 4. Based on the current understanding of the nature and extent of contamination at the site, there were no potentially complete pathways for biota.

Scope and Role of the Response Action

AFRC Albany Site 4 does not present any unacceptable risks to human health or the environment; therefore, the preferred remedy is No Action.

Community Participation

Public participation is an important component of remedy selection. The Army, with support from the New York Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH), is soliciting input from the community on the preferred alternative for AFRC Albany Site 4 (i.e. No Action). The Army will provide a 30-day comment period extending from 16 October 2017 to 14 November 2017 to allow the public an opportunity for involvement in the decision-making process for the proposed amendment. The public is encouraged to review and comment on this PP. During the public comment period, the public is encouraged to review the Administrative Record for the Site.

The public comment period will include a public meeting during which the Army, NYSDEC, and NYSDOH will present information and answer questions related to the site, and provide an opportunity for the public to comment on the PP. Final acceptance of this PP is reserved until the conclusion of the public comment period and regulatory review of the U.S. Army's responsiveness summary. Comments will be documented in the Record of Decision for AFRC Albany Site 4, which will set forth the final actions chosen for the site. The public meeting will be held on 24 October 2017 at 6:30 p.m. at Albany Public Library Pine Hills Branch, 517 Western Avenue, Albany, New York 12203.

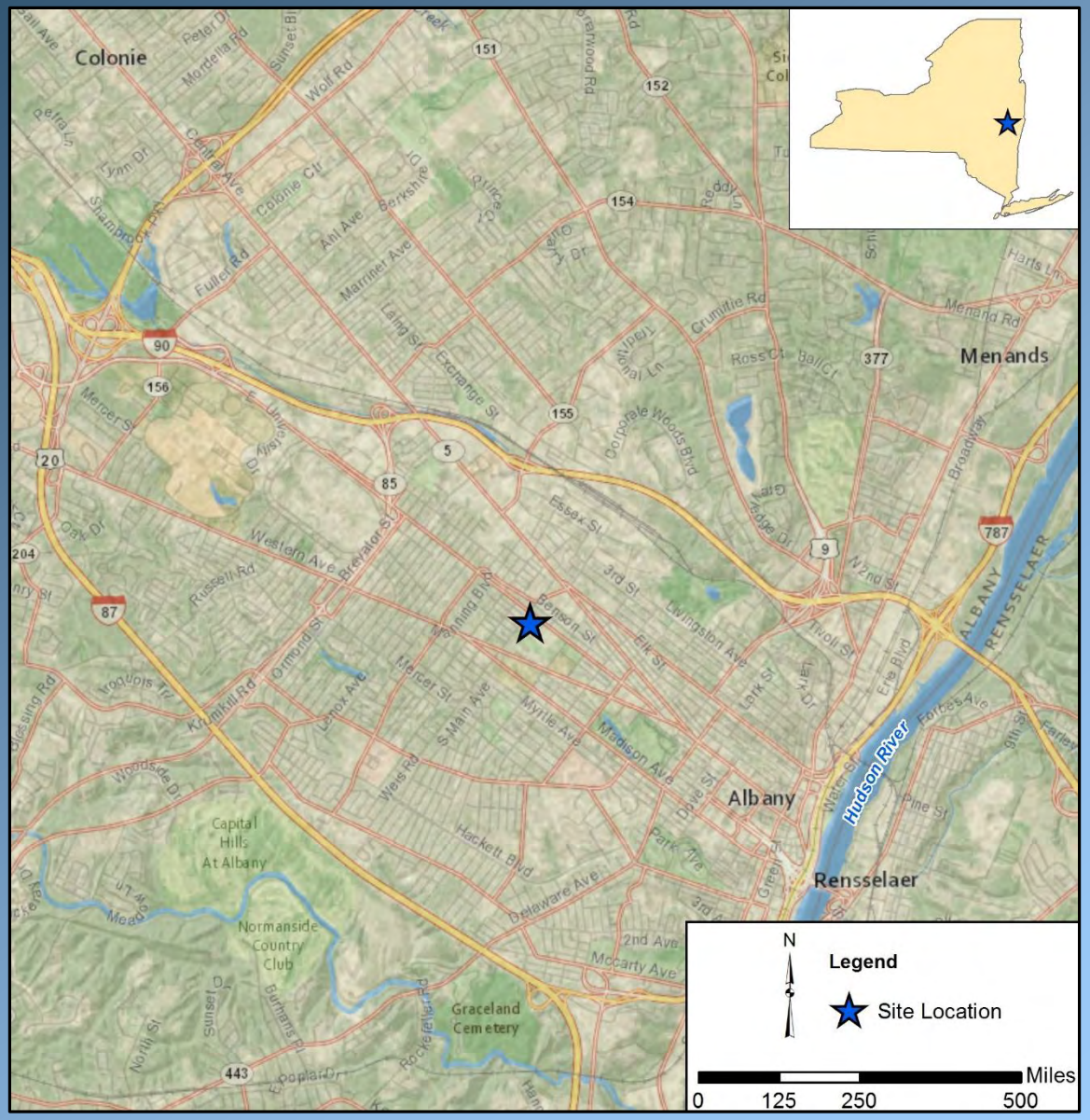
To obtain further information, the following representative may be contacted:
SHAWN MORRIS, Deputy PAO/Command Information Chief
E-Mail: shawn.h.morris.civ@mail.mil
If the public would like to comment in writing on the PP or other relevant issues, comments should be delivered to the Army or mailed to:

SHAWN MORRIS
Deputy PAO/Command Information Chief
99th Regional Support Command
5231 South Scott Plaza
Joint Base MDL, NJ 08640

Proposed Plan Public Meeting
Armed Forces Reserve Center Albany Site 4
O'Donovan Armed Forces Reserve Center
Albany, NY

24 October 2017

Site Location



Site Layout

- **O'Donovan AFRC:U. S. Army** Reserve Center
  - **O'Donovan Building, annex, O&M** building
  - Annex
  - Operation and Maintenance Building
  - Naval Reserve/Marine Corps Reserve centers
- AFRC Albany Site 4:
  - Former vehicle Wash Rack
  - Oil Water Separator

Site Investigation Timeline

- 1998 – 1999 Initial soil and groundwater investigation
- 1999 – Oil Water Separator system cleaned and filled
- 2003 – 2004 Additional soil and groundwater investigations.
- 2005 – Soil excavation (75 tons)
- 2011 – 2013 Site Inspection
- 2015 – 2016 Remedial Investigation

2005 Limited Soil Excavation

Sampling Locations

Summary of Groundwater Investigations

GW-5	Groundwater Concentration (µg/L)	
	4/19/2013	11/24/2015
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

GW-4	Groundwater Concentration (µg/L)		
	4/19/2013	11/24/2015	4/19/2016
PCE	(<0.5 U)	(<0.50 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)	(<0.50 U)

GW-7	Groundwater Concentration (µg/L)	
	4/19/2013	11/24/2015
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

GW-3	Groundwater Concentration (µg/L)		
	4/19/2013	11/24/2015	4/19/2016
PCE	(<0.5 U)	(<0.50 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)	(<0.50 U)

DP-2 10-15 ft) Analyte	11/6/2015	DP-2 (15-20 ft) Analyte	11/6/2015
PCE	(<0.5 U)	PCE	(<0.5 U)
TCE	(<0.5 U)	TCE	(<0.5 U)

MW-1	Groundwater Concentration (µg/L)				
	7/11/2012	8/9/2012	4/19/2013	11/24/2015	4/19/2016
PCE	120	80	1.3	0.61 J	0.42 J
TCE	(<1.0 U)	(<1.0 U)	(<0.5 U)	(<0.50 U)	(<0.5 U)

GW-2	Groundwater Concentration (µg/L)	
	4/19/2013	11/24/2015
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

DP-1 (13-17 ft) Analyte	11/5/2015	DP-1 (17-20 ft) Analyte	11/5/2015
PCE	(<0.5 U)	PCE	(<0.5 U)
TCE	(<0.5 U)	TCE	(<0.5 U)

MW-9	Groundwater Concentration (µg/L)	
	11/24/2015	4/19/2016
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

GW-6	Groundwater Concentration (µg/L)	
	4/19/2013	11/24/2015
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

MW-2	Groundwater Concentration (µg/L)				
	7/11/2012	8/9/2012	4/19/2013	11/24/2015	4/19/2016
PCE	9,500	2,800	49.1	4.3 J	2.1
TCE	(<20.0 U)	(<1.0 U)	(<0.5 U)	(<0.50 U)	(<0.50 U)

GW-8	Groundwater Concentration (µg/L)		
	4/19/2013	11/24/2015	4/19/2016
PCE	0.69	0.95 J	0.79 J
TCE	(<1.0 U)	(<0.50 U)	(<0.50 U)

MW-10	Groundwater Concentration (µg/L)	
	11/24/2015	4/19/2016
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

MW-3	Groundwater Concentration (µg/L)				
	7/11/2012	8/9/2012	4/19/2013	11/24/2015	4/19/2016
PCE	2,300	210	5.9	(<0.50 U)	(<0.50 U)
TCE	(<1.0 U)	(<4.0 U)	(<0.5 U)	(<0.50 U)	(<0.50 U)

GW-1	Groundwater Concentration (µg/L)	
	4/19/2013	11/24/2015
PCE	(<0.5 U)	(<0.50 U)
TCE	(<0.5 U)	(<0.50 U)

Legend

- O'Donovan AFRC Boundary
- AFRC Albany Site 4
- Former Wash Rack
- Oil Water Separator
- Former Trench Drain
- Existing Monitoring Well
- Newly Installed Monitoring Well
- Direct Push GW Grab Sampling Location

Analyte	EPA Tapwater RSL (µg/L)	EPA Maximum Contaminant Level (µg/L)
PCE	4.1	5
TCE	0.49	5
Concentrations exceeding EPA Tapwater RSL are red		
Concentrations exceeding EPA MCL are highlighted in yellow		

Remedial Investigation Conclusions

- Groundwater
  - No unacceptable risk - residential scenario
- Vapor Intrusion
  - No unacceptable risk from vapor intrusion – residential scenario
- Ecological Risk
  - No habitat or sensitive environments – site is paved

Proposed Action

- No Further Action

Questions?

O'Donovan Armed Forces Reserve Center Public Meeting
Pine Hills Branch, Albany Public Library
24 October 2017

Attendee Sign-In Sheet

Name	Organization	Phone #
Scarlett McLaughlin	NYS Dept. of Health	(518) 402-7860
Richard Jones	NYS DoH	(315) 477-8148
Jacob Holloway	AEC	210 466 1898
John Swartwout	NYSDEC	(518) 402-9620
Susan D. Shelton	99TH ENVIRONMENTAL RSC DPW	609.562.7661
Daniel Eaton	NYS DEC	518-402-9563
Jessica Thompson	public	507-459-5337
Scott Robson	EA Engineering	410-671-6057