PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared for:

Superfund Program SFD-7-3
US EPA Region IX
Attention: Ms. Alana Lee
75 Hawthorne Street
San Francisco, CA 94105

THIRD QUARTER 2019 STATUS REPORT
SULFIDATED ZERO VALENT IRON IN-SITU PILOT TEST

SMI HOLDING LLC
455 AND 485/487 EAST MIDDLEFIELD ROAD
MOUNTAIN VIEW, CALIFORNIA

OCTOBER 16, 2019

By:

Wenqian Dou, Ph.D., P.E.
Associate Engineer

Susan Gahry, P.E.
Principal Engineer

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1.0 INTRODUCTION

On behalf of SMI Holding LLC (SMI), PES Environmental, Inc. (PES) is submitting this Third Quarter (July through September) 2019 Quarterly Status Report for the voluntary sulfidated zero valent iron (ZVI) pilot test conducted at the former Siemens facility located at 455 and 485/487 East Middlefield Road (EMR) in Mountain View, California (the "Site"). The ZVI pilot test was implemented in July 2019 in accordance with PES's June 17, 2019 "*Work Plan for Sulfidated Zero Valent Iron In-Situ Pilot Test*" (Work Plan)[1]. The Work Plan was approved by the United States Environmental Protection Agency Region IX (EPA) via electronic mail on June 17, 2019.[2]

The ZVI pilot test utilized flowable, micron-sized, sulfidated ZVI[3] to promote the abiotic degradation or in-situ chemical reduction (ISCR) of trichloroethene (TCE)[4]. Sulfidated ZVI has less side reaction with water, enhanced reactivity with TCE, and increased longevity than unsulfidated ZVI.[5] Micron-sized ZVI is easier to inject than larger sizes of ZVI and avoids the clumping associated with nano-sized ZVI. The micron-sized ZVI is suspended in a colloidal solution to allow the solution to be dispersed into the formation without fracturing or mechanical mixing in the subsurface.

This report summarizes the July 2019 ZVI injection activities and the performance monitoring results to date. The activities associated with injection activities included the construction of new groundwater monitoring wells (along with development and surveying) and soil vapor probes; pre-injection (baseline) monitoring of groundwater and soil vapor; indoor air sampling with the building's heating, ventilation, and air conditioning (HVAC) off; the actual injection activities; and post-injection groundwater and soil vapor sampling.

In order to implement the pilot test, an access agreement with the property owner was obtained; with the exception of the installation of new monitoring wells, the access agreement limited the injection activities to the month of July 2019 only.

This report is organized as follows:

- Section 2 provides abbreviated background information;

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[1] PES. 2019. *Work Plan for Sulfidated Zero Valent Iron In-Situ Pilot Test, SMI Holding LLC, 455 and 485/487 East Middlefield Road, Mountain View, California*. June 17.

[2] EPA, 2019. Electronic mail from Ms. Alana Lee of EPA to Sue O'Connor of SMI entitled "*EPA Approval – Work Plan for Sulfidated Zero Valent Iron (ZVI) In-Situ Pilot Test for SMI Holding LLC 455 and 485/587 East Middlefield Road, Mountain View, CA*". June 17.

[3] The ZVI used was micron-sized (less than 5 micron), consisting of a pre-mixed colloidal suspension liquid with 40% ZVI by weight, and was readily injected.

[4] A more detailed discussion of the treatment technology was provided in the Work Plan.

[5] EST, 2017. *Mechanochemically Sulfidated Microscale Zero Valent Iron: Pathways, Kinetics, Mechanism, and Efficiency of Trichloroethylene Dechlorination*. Environ. Sci. Technol. 2017, 51, 12653-12662.

- Section 3 discusses the field activities including permitting, utility clearance, soil vapor probe installation, monitoring well construction, indoor air sampling, reagent injection, waste disposal, and site restoration;
- Section 4 provides the monitoring results to date; and
- Section 5 discusses activities planned for the subsequent quarter.

2.0 BACKGROUND

2.1 Site Location and Features

The Site is located upgradient or on the south side of the Middlefield-Ellis-Whisman (MEW) Study Area (see Plate 1). Contaminant source control activities at the Site have been conducted in accordance with EPA's 1990 Section 1.6 Unilateral Administrative Order (106 Order)[6], the May 1989 Record of Decision (ROD)[7], and the 2010 Vapor Intrusion ROD Amendment[8].

Site features are shown on Plate 2. Two buildings, 455 EMR and 485/487 EMR, may overlie shallow (A-aquifer) groundwater that has been impacted with TCE and degradation products of TCE including cis-1,2-dichlorethene (cis-1,2-DCE) and vinyl chloride.

2.2 Hydrogeology

A-aquifer materials are generally present at depths ranging from approximately 15 to 30 feet below ground surface (bgs) at the Site. The aquifer materials were likely deposited in alluvial environments. The deeper B1-aquifer, as characterized by well SO3-B1, has not been impacted with TCE (or TCE degradation products) above cleanup levels.

The general groundwater flow direction in the A-aquifer on the Site was historically to the north towards San Francisco Bay. However, subsequent to the installation of a slurry wall surrounding the downgradient Raytheon site located at 350 Ellis Street (the Raytheon site and slurry wall are shown on Plate 1), the groundwater flow direction bifurcated to the northeast and northwest on the northern portion of 455 EMR and 485/487 EMR.

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[6] EPA, 1990. *Administrative Order for Remedial Design and Remedial Action, Docket No. 91-4.* November 29.

[7] EPA, 1989. *Fairchild, Intel, and Raytheon Sites, Middlefield/Ellis/Whisman (MEW) Study Area, Mountain View, CA, Record of Decision.* June 9.

[8] EPA, 2010. *Record of Decision Amendment for the Vapor Intrusion Pathway, MEW Superfund Study Area.* August 16.

2.3 Source Areas

As shown on Plate 2, two potential sources of volatile organic compounds (VOCs) were identified on the 455 EMR site[9]: (1) waste solvent/neutralization tanks formerly located near the southeastern corner of the 455 EMR building; and (2) suspected releases in the vicinity of the southeastern corner of the 455 EMR site. Results of chemical analyses of soil and groundwater samples from the area south of 485/487 EMR suggested a release of TCE across the southern portion of the 485/487 EMR property, but it is not known whether these sources were due to on-Site activities and/or off-Site activities[10]. Soil and groundwater impacts above the cleanup levels have not been identified at 501/505 EMR.

2.4 Upgradient Source

An upgradient source of TCE concentrations in groundwater is evident based on historical groundwater chemistry data for regional well R-24A located at 500 Ferguson Drive (ranging from 16 to 22 μg/L between 2003 and 2006[11] and 12 to 16 μg/L between 2009 and 2011)[12]; monitoring data for this well could not be found in the most recent MEW Regional Program report[13].

2.5 Groundwater Extraction and Treatment System

In 1995, four source control recovery wells (SCRWs), or groundwater extraction wells (EW-1, EW-2, EW-3, and EW-4), were also installed in the A-aquifer. The extracted groundwater was treated by two granular activated carbon (GAC) vessels in series. The groundwater extraction and treatment system (GWTS) operated between 1997 and 2019. On June 18, 2019, the GWTS was shut down with EPA's approved[14] for the duration of the in-situ pilot test.

2.6 Additional Background Information

Additional background information regarding other pilot tests and remediation activities was provided in the Work Plan.

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[9] PES, 1993. *Source Investigation and Characterization – Addendum 1, Sobrato Property, 455 East Middlefield Road, Mountain View, California*, July 30, 1993.

[10] PES, 1992. *Source Investigation and Characterization, Sobrato Properties, 485/487 and 501/505 East Middlefield Road, Mountain View, California*, March 30, 1992.

[11] Weiss, 2009. *2008 Annual Progress Report for MEW Regional Groundwater Remediation Program*. June 15.

[12] Geosyntec, 2014. *2013 Annual Progress Report for MEW Regional Groundwater Remediation Program.* March 14.

[13] Geosyntec, 2019. *2018 Annual Progress Report - Regional Groundwater Remediation Program - MEW Superfund Area, Mountain View and Moffett Field, CA*. April 15.

[14] EPA, 2019. Email from Alana Lee of EPA to Susan Gahry of PES. June 17.

3.0 FIELD ACTIVITIES

With prior EPA approval (see Section 2.5), the GWTS was turned off on June 18, 2019 in preparation for the injection activities.

3.1 Utility Clearance Activities

PES met with the property owner's fiber optics provider to facilitate location of underground fiber optic lines and utilized an underground utility service locating subcontractor (C. Cruz of Santa Cruz, California) to check that the drilling locations were clear of underground utilities. PES also notified Underground Service Alert prior to the drilling activities.

Additionally, each drilling/injection location was cleared of subsurface utilities using either air-knifing or hand-augering to a depth of 5 feet below ground surface (bgs). The air-knifing services were provided by Badger Daylighting, Inc. (Badger) of Martinez, California.

3.2 Monitoring Well and Soil Vapor Probe Construction

3.2.1 Permits

Groundwater monitoring well construction permits were obtained from the Santa Clara Valley Water District (SCVWD) prior to well installation activities and are included in Appendix A. Because the depth of the soil vapor probes and direct-push boreholes for reagent injection were less than 45 feet bgs, SCVWD permits were not required.

3.2.2 Monitoring Well Construction, Development, and Surveying

Between June 24 and 27, five new groundwater monitoring wells (SM-01 through SM-05) (see Plate 3) were installed by PeneCore Drilling of Woodland, California (PeneCore) under PES oversight.

Prior to installing the monitoring well, a direct-push pilot borehole was advanced with a Geoprobe 7822DT rig equipped with 2.25-inch diameter tooling to a total depth of approximately 35 feet bgs. The bottom 3 to 4 feet of each direct-push pilot borehole was backfilled with hydrated bentonite chips prior to drilling the well boreholes discussed below. The lithologic information obtained from the direct-push borehole was evaluated to assess the appropriate screen interval for the well. The borehole for the well was drilled directly over the direct-push boring using 10-inch outside-diameter hollow-stem augers. The wells were then constructed with 4-inch diameter PVC well casing and screened from approximately 15 to 30 feet bgs with 0.020-inch slotted well screen. Total depths of the wells are approximately 30 feet bgs. The wells were constructed following the procedures discussed in the Work Plan. The SCVWD inspected the placement of the grout seal. Well construction logs are included in Appendix B.

Well development activities were completed between July 1 and 3, 2019. Due to high historical turbidity measurements, wells R-20A and C-3 were also redeveloped on June 28 and July 3, 2019, respectively. The objective of well development is to remove fine-grained material inside the filter pack and casing, to stabilize and sort the filter pack around the well screen, and to produce representative water samples from the monitored zones. Except for wells R-20A and C-3, the wells were developed by Cascade Drilling, LP (Cascade), of Richmond, California, using a combination of bailing, swabbing, and pumping with a submersible pump. A PES engineer supervised the well development activities and recorded well development data on the well development forms included in Appendix C. Wells R-20A and C-3 are located near the sidewalk and had limited access; therefore, these wells were manually re-developed by Blaine Tech Services, Inc. (Blaine Tech) of San Jose, California, using a combination of bailing and swabbing. The well development logs for wells R-20A and C-3 are also included in Appendix C.

3.2.3 Soil Vapor Probe Installation

Four permanent soil vapor probes (SV-01 through SV-04) were installed at the Site on June 26 and 27, 2019 by PeneCore with PES oversight. At each soil vapor probe location, the borehole was hand augered to 5 feet bgs and then advanced using a Geoprobe 7822DT direct-push rig equipped with a 2.25-inch diameter rod to a total depth of 7 feet bgs. The soil vapor-probe was then installed with a stainless-steel vapor inlet set at 6.5 feet bgs and connected to ¼-inch outside diameter Teflon® tubing in accordance with the procedures discussed in the Work Plan.

3.3 Baseline Groundwater and Soil Vapor Monitoring

Baseline groundwater sampling was conducted on June 28, 2019 for the existing wells and July 10, 2019 for the new wells. Baseline soil vapor sampling was conducted at the four soil vapor probes on July 2, 2019. The groundwater and soil vapor sample collection and analyses were performed according to the procedures discussed in the Work Plan.

The groundwater samples were analyzed for VOCs using EPA Method 8260B, nitrate (as nitrogen) and sulfate using EPA Method 300.0, total iron using EPA Method 6010B, and dissolved gases (i.e., methane, ethane, ethene, and acetylene) using Test Method AM20GAX. Groundwater samples for dissolved gases analyses were submitted under chain-of-custody (COC) documentation to Pace Analytical in Pittsburgh, Pennsylvania. Groundwater samples for other analyses were submitted under COC documentation to Eurofins/TestAmerica, Inc. of Pleasanton, California.

Soil vapor samples were submitted to KPrime, Inc. of Santa Rosa, California under COC documentation for analyses of select VOCs (i.e., TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) using EPA Method TO-15, and the propellant tracer 1,1-difluoroethane (1,1-DFA; a leak-check compound) using EPA Method TO-3.

3.4 Conduit Sealing and HVAC Off Indoor Air Sampling

On July 2, walk-throughs of 455 and 485/487 EMR were completed by Alana Lee of EPA and PES[15] to assess potential pathway locations and to select the indoor air sampling locations. Simultaneously, PES' licensed electrical subcontractor sealed previously identified potential pathways that the property owner had not previously granted access for sealing. These potential pathways included the electrical conduits beneath the large electrical panels in the electrical room located in the southeast corner of 455 EMR. However, the conduits in the electrical room located in 485/487 EMR could not be sealed as they were connected to an underground high-voltage PG&E transformer that was not safe to access. The fire risers and other floor penetrations were also sealed in both 455 and 485/487 EMR. The sealant used was an expandable foam that did not contain chemicals of concern at the Site.

Indoor air sampling with the HVAC fully off (HVAC-off) indoor air sampling could not previously be completed at 455 EMR due to prior limitations imposed by the property owner. Thus, the indoor air sampling was completed to satisfy EPA's prior request for HVAC-off sampling at 455 EMR and to assess baseline indoor air conditions prior to implementation of the in-situ pilot test. The HVAC systems in both buildings (455 EMR and 485/487 EMR) were shut down at approximately 4 PM on July 8, 2019[16]. The HVAC systems remained off during the indoor air sampling. Indoor air sampling was completed between approximately 1 PM on July 10 and 1 PM on July 11, 2019. With prior EPA approval, indoor air sampling was completed in both buildings using RAD145[17] Radiello® passive samplers rather than the Summa canister method discussed in the Work Plan. The samples were collected within the breathing zone (height of 4.5 feet above ground surface) over a 24-hour period. Ambient or outdoor air samples were also collected simultaneously to assess background concentrations.

The indoor air Radiello® passive samplers were sent under COC documentation to ALS Environmental (ALS) in Simi Valley, California for analyses of TCE using EPA Method TO-17.

3.5 Field Application of Reagents

As discussed in the Work Plan, the injections areas included: (1) the source area (vicinity of wells SO-PZ1 and SO-PZ2, where the highest residual TCE and cis-1,2-DCE concentrations were previously detected in groundwater; and (2) in the mid-plume and downgradient on-Site plume area between the source area and the northern property boundary (where wells R-20A and C-3 are located) as shown on Plate 3.

Between July 6 and 26, 2019, the injection activities were completed at the Site as discussed in the Work Plan at locations shown on Plate 3. The injections were completed near the former source areas via 81 grid-spaced injection points (I01 through I81).

[15] Susan Gahry and Scott Morrison of PES attended the building walk-throughs.
[16] The HVAC units were off for approximately 40 hours prior to the initiation of HVAC off indoor air sampling.
[17] The Radiello RAD145 samplers are analyzed using thermal desorption methodology.

Injections were also completed in rows in the mid-plume and distal plume area via 51 injection points (I82 through I132), although some rows were modified due to the presence of subsurface utilities. Some injections near the buildings were also completed using slant drilling to reach beneath sidewalks.

As discussed in the Work Plan, the reagents were obtained from and applied by Regenesis Remediation Services, Inc. of San Clemente, California (RRS). RRS supplied an injection trailer with reagent mixing and metering equipment. The reagents include sulfidated[18] micro-sized ZVI (AquaZVI™) and Chemical Reducing Solution (CRS®). AquaZVI™ is a sulfidated, micron-sized (less than 5 microns), colloidal suspension of 40% by weight ZVI in an aqueous medium. In some locations, a newer RRS product, S-MicroZVI™, was utilized as RRS no longer produces AquaZVI™ on a routine basis (and enough AquaZVI™ was not available for this project). AquaZVI™ has a shorter shelf life than S-MicroZVI™. S-MicroZVI™ is very similar to AquaZVI™ except S-MicroZVI™ also contains some glycerol to aid in maintaining the suspension of the ZVI in the aqueous solution.

A drilling rig was provided by PeneCore to advance the injection boreholes. The injection and drilling work were overseen by a PES geologist. PeneCore utilized either a Geoprobe 7822DT or 6610 DT direct-push drilling rig. The boreholes were advanced using 1.5-inch diameter drill rods, with a 3-foot retractable screen injection tooling used for the injections. Mixing water was obtained from a metered on-Site City of Mountain View fire hydrant under a City permit obtained by PES.

In general, no injection difficulties were encountered (at a few locations on the west side of the source area, high injection pressures and/or minor product surfacing was observed). The desired quantity of reagents was successfully applied. The borings were backfilled with neat cement grout in accordance with SCVWD requirements (even though SCVWD permits were not required).

In the grid-based (source area) injection area, a total of 26,350 pounds (lbs) of S-MicroZVI™ and 4,294 lbs of CRS® (Chemical Reducing Solution), was mixed with water and injected at 4 or 5 intervals per location within the 15 to 30 target treatment depth. A total of 50,327 gallons of reagent solution was injected, with an average of approximately 36.67 gallons per foot injection rate at each of the 81 injection locations in the source area.

In the mid-plume and downgradient on-Site plume area (i.e., the barrier row injection area), a total of 3,650 lbs of S-MicroZVI™, 36,000 lbs of AquaZVI™, and 5,306 lbs of CRS®, was injected at 5 or 6 intervals per location within the 15 to 30 target treatment depth. A total of 38,250 gallons of reagent solution was injected, with an average of approximately 50 gallons per foot injection rate at each of the 51 injection locations in the mid-plume area.

[18] ES&T, 2017. *Mechanochemically Sulfidated Microscale Zero Valent Iron: Pathways, Kinetics, Mechanism, and Efficiency of TCE Dechlorination*. Environ. Sci. Technol. 2017, 51-12653-12662.

A total of 82,998 gallons of water was used for reagent mixing. A copy of RRS's application summary report is included in Appendix E.

3.6 Site Restoration

As requested by the property owner, the entire parking lot around 455 and 485/487 EMR was resurfaced and restriped by PES' subcontractor Bond Pavement Solutions Inc. of San Jose, California between July 27 and 29, 2019.

3.7 Post-Injection Groundwater and Soil Vapor Monitoring Activities

To date, two monthly post-injection groundwater monitoring events have been conducted, (August 19 and 20, 2019 and September 16 and 17, 2019), and one quarterly soil vapor monitoring event has been conducted (on August 19, 2019). The sampling followed the same procedures as those discussed in Section 3.3 for the baseline sampling events.

3.8 Waste Disposal

Wastes generated from groundwater monitoring well installation, development, and groundwater sampling were contained in secured, labeled Department-of-Transportation (DOT)-approved 55-gallon steel drums and stored temporarily on-Site pending waste characterization results. The wastes were then transported under non-hazardous waste manifest by American Integrated Services, Inc. (AIS) to Crosby & Overton, Inc. at Long Beach, California for disposal as non-hazardous wastes.

Soil and wastewater generated during air-knifing activities was contained in two roll-off bins supplied by Badger. Badger removed the soil and wastewater in the bins using a vacuum truck and transported these as non-hazardous waste to the Potrero Hills Landfill in Suisun City, California.

The totes used for the ZVI were recycled by Schuetz Container System to Recon Services, Inc. in Riverside, California.

The waste disposal documentation is included in Appendix F of this report.

4.0 MONITORING RESULTS

The indoor air, soil vapor, and groundwater monitoring results are discussed below.

4.1 HVAC-Off Indoor Air Monitoring

The HVAC-off indoor air monitoring results are summarized in Table 1 and illustrated on Plate 4. The indoor air TCE sampling results ranged from 0.15 micrograms per cubic meter ($\mu g/m^3$) to 0.33 $\mu g/m^3$. The outdoor air TCE sampling results were non-detect (less than 0.051 $\mu g/m^3$).

The HVAC-off indoor air monitoring results are well below the indoor air cleanup levels for long-term exposure for the MEW site of 5.0 $\mu g/m^3$ for commercial property use and 1.0 $\mu g/m^3$ for residential property use. The indoor air cleanup levels are contained in the vapor intrusion (VI) Record of Decision (ROD) Amendment for the MEW site[19].

Based on these results, the buildings should be classified as Tier 3B per the VI ROD Amendment. Tier 3B is used to designate an existing building where indoor air has been sampled with no engineering control operating with results at or within outdoor air (background) concentrations. The VI ROD Amendment states that outdoor concentrations of TCE typically range from below laboratory analytical detection limits to 0.4 $\mu g/m^3$ in the MEW area. For Tier 3B buildings, no long-term indoor air monitoring is required.

4.2 Soil Vapor

Soil vapor monitoring results are summarized in Table 2 and illustrated on Plate 5. Only TCE was detected in the soil vapor samples collected on July 2 (prior to injections) and August 19 (within four weeks of the completion of injections). The soil vapor monitoring results are summarized below:

- **Pre-Injection:** The TCE detected in soil vapor ranged from 63 $\mu g/m^3$ (at location SV-02) to 800 $\mu g/m^3$ (in duplicate samples at location SV-04); and

- **Post-Injection:** The TCE detected in soil vapor ranged from 74.2 $\mu g/m^3$ (at location SV-02) to 546 $\mu g/m^3$ (at location SV-04).

As indicated in Table 2, the leak check compound (1,1-DFA) was detected in a sample from location SV-01 and a duplicate sample from location SV-04 at concentration of 37.5 and 13.4 parts per million by volume (ppmV), respectively. As indicated in the table, the percent ambient air leak in these samples were 0.02 percent and 0.2 percent, respectively, which are well below the 5 percent maximum acceptable amount per California Environmental Protection Agency Department of Toxic Substances Control (DTSC)'s most recent guidance document[20]. 1,1-DFA was not detected above the laboratory reporting limit in the other samples.

The TCE concentrations in soil vapor did not increase and thus, did not trigger the contingency plan provided in the Work Plan.

4.3 Groundwater

Groundwater sampling results are summarized in Table 3 and illustrated on Plate 6. As previously discussed, baseline (pre-injection) groundwater monitoring was completed on

[19] EPA, 2010. *Record of Decision Amendment for the Vapor Intrusion Pathway, MEW Superfund Study Area, Mountain View and Moffett Field, California*. August 16.

[20] DTSC, 2015. *Advisory – Action Soil Gas Investigation*. Jointly developed by DTSC and the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) and RWQCB, San Francisco Region (SFRWQCB). July.

June 28 (for existing wells) and July 10 (for new wells)[21]. Monthly post-injection monitoring was expanded beyond the program discussed in the Work Plan to include other wells; for those wells, the baseline monitoring results shown on Table 3 are those from the last annual monitoring event in November 2018. The groundwater monitoring results for chemicals of concern generally indicated lower concentrations after treatment as summarized below:

- **Pre-Injection**: The pre-injection TCE groundwater concentrations ranged from less than 0.50 micrograms per liter (μg/L) in source area well SO-PZ1 to 930 μg/L in downgradient (near northern property boundary) well C-3. The pre-injection cis-1,2-DCE concentrations ranged from less than 0.50 μg/L (upgradient wells SM-01 and SM-02, and mid-plume well SM-04) to 870 μg/L in source area (well SO-PZ1). The pre-injection vinyl chloride concentration ranged from less than 0.50 μg/L (in multiple wells) to 140 μg/L in source area well SO-PZ1; and

- **Post-Injection**: On September 16 and 17, 2019, approximately seven weeks after the injections were completed, and excluding the upgradient wells (SM-01, SM-02, and R-21A) and well R-20A, the TCE concentrations ranged from less than 0.50 μg/L (multiple wells) to 87 μg/L in well C-3. The TCE concentrations in upgradient wells SM-01, SM-02, and R-21A ranged from 18 μg/L (well R-21A) to 35 μg/L (well SM-01). The TCE concentration in well R-20A remained high (750 μg/L) and nearly the same as the pre-injection concentration of 840 μg/L.[22] Cis-1,2-DCE concentrations ranged from less than 0.50 μg/L (well SM-04) to 240 μg/L (well EW-2). Vinyl chloride concentrations ranged from less than 0.50 μg/L (in multiple wells) to 25 μg/L in source area well SO-PZ2.

After the injections, the August 2019 post-injection monitoring results indicated the presence of 2-butanone (or methyl ethyl ketone [MEK]) and acetone in some wells at concentrations up to 810 / 910 μg/L (duplicate samples from well SM-05) and 1,100B μg/L[23] (well SM-03), respectively. The MEK and acetone (ketones) were apparently generated from ketone fermenter bacteria and/or abiotically[24]; however, this is expected to be a transitory occurrence. In September 2019, MEK and acetone levels were lower (maximum concentrations of 900 μg/L and 50 μg/L, respectively, in well SM-05).

The geochemical parameters (ORP/DO) for wells in the treatment areas indicated negative ORP and low DO concentrations (generally less than 1.0 mg/L). After injection, nitrate was not detected in most wells monitored in the treatment areas except for in well R-20A (and the upgradient wells). After injection, sulfate concentrations were lower in most wells monitored in the treatment area except for wells R-20A and C-3.

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[21] The wells sampled were those included in the pre- and post-injection monitoring program discussed in the Work Plan.

[22] Well R-20A will be sampled at multiple depths in October 2019 to further assess the vertical concentration distribution.

[23] B is a data flag indicating the compound was also detected in the blank sample.

[24] Pollution Engineering, 2011. *The Generation of Acetone and Ketones – a Positive Process?* September.

The TCE concentrations in groundwater did not increase and thus, did not trigger the contingency plan provided in the Work Plan.

5.0 PLANNED ACTIVITIES

Activities to be completed during Fourth Quarter 2019 (October through December) and thereafter include:

- Conduct the last monthly post-injection groundwater monitoring event in October 2019 (along with the annual groundwater monitoring event), with quarterly sampling thereafter (commencing in January 2020) in accordance with the monitoring schedule provided in the Work Plan;
- Complete a quarterly soil vapor monitoring event in November 2019, with quarterly sampling until May 2020 in accordance with the monitoring schedule provided in the Work Plan; and
- Submit the next quarterly monitoring report (for Fourth Quarter 2019) by the end of January 2020.

TABLES

Table 1
Indoor Air Monitoring Results - HVAC Off
SMI Holding LLC, 455 and 485/487 East Middlefield Road
Mountain View, California

ZVI Injections Completed July 6 - 26, 2019		
Location	**Date Radiello RAD145 Passive Sampler Deployed [1]**	**Trichloroethene ($\mu g/m^3$)**
455 East Middlefield Road		
455IA-01	7/10/2019	**0.22**
455IA-02	7/10/2019	**0.16**
455IA-03	7/10/2019	**0.15**
455IA-04	7/10/2019	**0.15**
455IA-05	7/10/2019	**0.17 / 0.16**
OUT-01	7/10/2019	<0.051
485/487 East Middlefield Road		
487IA-01	7/10/2019	**0.33**
487IA-02	7/10/2019	**0.23**
487IA-03	7/10/2019	**0.19**
487IA-04	7/10/2019	**0.18**
487IA-05	7/10/2019	**0.16 / 0.16**
OUT-02	7/10/2019	<0.051
2010 VI ROD Amendment Cleanup Level (Industrial Use)[2]		5.0
2010 VI ROD Amendment Cleanup Level (Residential Use)[2]		1.0

Notes:
Detections are in **bold** fonts.
[1] Samplers were retrieved the next day after a 24-hour sampling period.
[2] The indoor air cleanup levels are defined in EPA's August 16, 2010 Vapor Intrusion (VI) Record of Decision (ROD) Amendment.
$\mu g/m^3$ = micrograms per cubic meter.
< 0.051 = analyte not detected at or above the laboratory reporting limit indicated.
HVAC = Heating, ventilation, and air conditiong.
ZVI = zero valent iron.
Laboratory analysis completed by ALS Environmental of Simi Valley, California.

Table 2
Soil Vapor Monitoring Results
SMI Holding LLC, 455 and 485/487 East Middlefield Road, Mountain View, California

ZVI Injections Completed July 6 - 26, 2019										
Sample Location	Date Sampled	Sample Depth (feet bgs)	TCE (µg/m^3)	cis-1,2-DCE (µg/m^3)	trans-1,2-DCE (µg/m^3)	Vinyl Chloride (µg/m^3)	Leak Check Compound 1,1-DFA (ppmV)	1,1-DFA Shroud Sample Result (ppmV)	% of 1,1-DFA in Soil Vapor / Shroud Concentration	Leak Check Acceptable (less than 5%)
SV-01	7/2/2019	6.5	**146**	<3.97	<3.96	<2.56	<10.0	10,300	0%	Yes
	8/19/2019		**134 / 134**	<3.97 / <3.97	<3.96 / <3.96	<2.56 / <2.56	**37.5** / <10.0	215,000	0.02% / 0%	Yes / Yes
SV-02	7/2/2019	6.5	**63.0**	<3.97	<3.96	<2.56	<10.0	14,600	0%	Yes
	8/19/2019		**74.2**	<3.97	<3.96	<2.56	<10.0	58,400	0%	Yes
SV-03	7/2/2019	6.5	**65.1**	<3.97	<3.96	<2.56	<10.0	3,700	0%	Yes
	8/19/2019		**75.2**	<3.97	<3.96	<2.56	<10.0	36,700	0%	Yes
SV-04	7/2/2019	6.5	**800 / 800**	<3.97 / <3.97	<3.96 / <3.96	<2.56 / <2.56	<10.0 / **13.4**	5,880	0% / 0.2%	Yes / Yes
	8/19/2019		**546**	<6.34	<6.34	<2.56	<10.0	20,500	0%	Yes
Contingency Measures Applicable if Soil Vapor Concentrations Exceed:										
1,000 x Indoor Air Cleanup Levels [1]			5,000	210,000	210,000	2,000				
100% of the Baseline (7/2/2019) Concentrations										

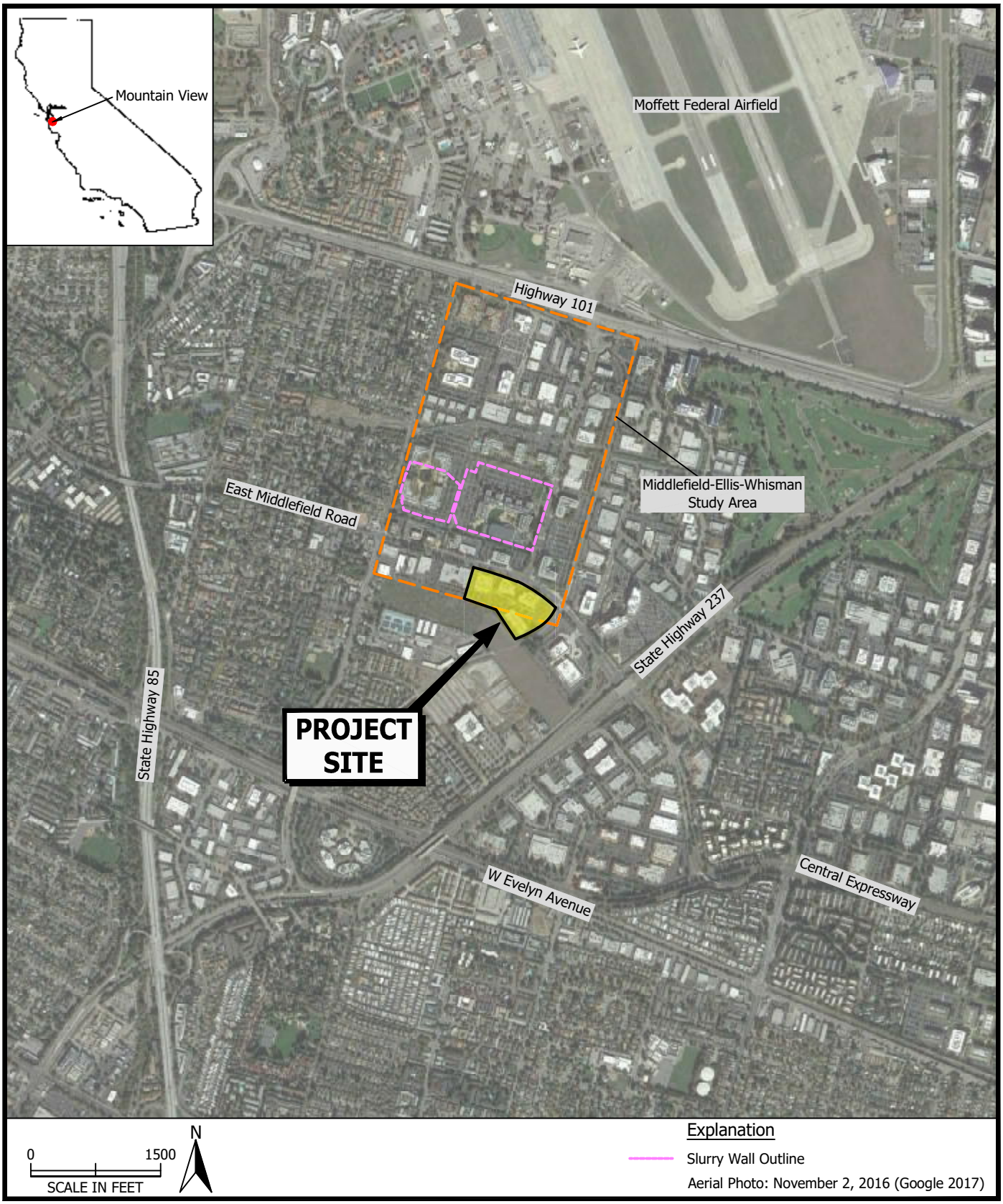
Notes:
Detections are shown in **bold** fonts. Baseline (pre-injection) sampling results are shaded grey.
[1] The indoor air cleanup levels are defined in EPA's August 16, 2010 Vapor Intrusion (VI) Record of Decision (ROD) Amendment.
µg/m^3 = micrograms per cubic meter.
< 3.97 = not detected at or above the indicated laboratory reporting limit.
bgs = below ground surface.
TCE = trichloroethene; DCE = dichloroethene; 1,1-DFA = 1,1-difluoroethane (leak check compound).
NA = Not analyzed, not available, or not applicable.
ppmV = parts per million by volume.
Laboratory analyses completed by KPrime, Inc. of Santa Rosa, CA.

Table 3
Groundwater Monitoring Results
SMI Holding LLC, 455 and 485/487 East Middlefield Road, Mountain View, California

Well ID	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	2-Butanone (MEK) (µg/L)	Acetone (µg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Acetylene (µg/L)	ORP (mV)	DO (mg/L)	Nitrate as N (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Total Iron (mg/L)
ZVI Injections Completed July 6 - 26, 2019																	
Upgradient Wells																	
SM-01	7/10/2019	**53**	<0.50	<0.50	<0.50	<50	<50	**2.5**	**0.88**	**2.5**	<0.50	**176**	**2.3**	**8.6**	**140**	0	<1.0
	8/19/2019	**38**	**0.40**	<0.20	<0.020	<10	<6.0	**2.7**	**0.74**	**1.6**	<0.50	**-15**	**2.5**	**44**	**120**	**0.60**	<1.0
	9/16/2019	**35**	<0.50	<0.50	<0.50	<50	<50	**6.2**	**0.49**	<0.10	<0.50	**-126**	**3.3**	**11**	**120**	0	<1.0
SM-02	7/10/2019	**16**	<0.50	<0.50	<0.50	<50	<50	**11**	**2.3**	**3.5**	<0.50	**146**	**0.6**	**0.79**	**330**	0	<1.0
	8/19/2019	**20**	**0.27**	<0.20	**0.11**	<10	<6.0	**6.1**	**1.4**	**3.6**	<0.50	**-60**	**3.3**	<1.0	**330**	0	**5.3**
	9/16/2019	**19**	<0.50	<0.50	<0.50	<50	<50	**11**	**3.3**	**5.5**	<0.50	**-87**	**0.8**	<0.23	**570**	0	<1.0
R-21A	6/28/2019	**20**	**2.7**	<0.50	<0.50	<50	<50	NA	NA	NA	NA	**103**	**1.2**	**2.4**	**120**	0	<1.0
	8/19/2019	**24**	**3.9**	<0.20	<0.020	<10	< 6.0	NA	NA	NA	NA	**95**	**1.2**	**10**	**110**	**0.80**	**5.4**
	9/16/2019	**18**	**5.4**	<0.50	<0.50	<50	<50	NA	NA	NA	NA	**39**	**2.0**	**2.4**	**120**	0	<1.0
Source Area Wells																	
SO-PZ1	6/28/2019	<0.50	**870**	**5.5**	**140**	<50	<50	NA	NA	NA	NA	**-189**	**0.3**	<0.23	**130**	0	**2.7**
	8/19/2019	<0.20	**39**	**1.5**	**87**	**73**	<30	NA	NA	NA	NA	**-211**	**0.5**	< 1.0	< 1.0	**2.2**	**5.0**
	9/16/2019	<0.50	**1.5**	**0.90**	**3.9**	**190**	<50	NA	NA	NA	NA	**-192**	**1.4**	<0.23	< 1.0	**2.0**	**1.4**
SO-PZ2	6/28/2019	**3.9 / 5.8**	**250 / 290**	**6.1 / 7.6**	**41 / 32**	<250 / <250	<250 / <250	NA	NA	NA	NA	**-90**	**0.4**	<0.23	**160**	0	<1.0
	8/19/2019	<0.20	**24**	**3.0**	**220**	<10	< 6.0	**38**	<0.10	**4.7**	<0.50	**-135**	**0.3**	<1.0	**110**	0	<1.0
	9/16/2019	<0.50	**16**	**4.5**	**25**	<50	<50	**38**	**0.38**	**44**	<0.50	**-235**	**0.9**	<0.23	**110**	0	<1.0
Mid-Plume Wells																	
EW-2	11/8/2018	**45**	**27**	<0.50	<0.50	<5.0	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/2019	**10**	**87**	**0.46**	**3.1**	**46**	<6.0	NA	NA	NA	NA	**-387**	**1.0**	NA	NA	NA	NA
	9/16/2019	**9.0**	**240**	**1.5**	**19**	<50	<50	NA	NA	NA	NA	**57**	**0.8**	NA	NA	NA	NA
SO-2	11/8/2018	**37**	**2.1**	<0.50	<0.50	<5.0	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/19/2019	**39**	**2.2**	<0.20	<0.020	<10	<6.0	NA	NA	NA	NA	**-53**	**1.2**	NA	NA	NA	NA
	9/16/2019	**20**	**1.9**	<0.50	<0.50	<50	<50	NA	NA	NA	NA	**97**	**0.8**	NA	NA	NA	NA
SM-03	7/10/2019	**33**	**360**	<10	<10	<1,000	<1,000	**5.4**	**5.0**	**18**	**1.6**	**130**	**0.7**	<0.23	**150**	0	<1.0
	8/19/2019	<20	**36**	<20	<2.0	<1,000	**1,100B**	**27**	**10**	**34**	<0.50	**-388**	**0.3**	<1.0	**20**	**0.5** [1]	<1.0
	9/16/2019	<0.50	**7.2**	<0.50	<0.50	<50	<50	**150**	**32**	**53**	<0.50	**-39**	**0.9**	<0.23	**3.1**	NA [2]	**13**
SM-04	7/10/2019	**0.65**	<0.50	<0.50	< 0.50	<50	<50	**1.9**	< 0.10	**0.19**	<0.50	**-23**	**0.7**	<0.23	**160**	0	**1.3**
	8/19/2019	<0.20 / <0.20	<0.20 / <0.20	<0.20 / <0.20	<0.20 / <0.20	<10 / <10	<6.0/<6.0	**12**	**6.4**	**9.1**	<0.50	**-155**	**0.4**	<1.0	**58**	**2.2**	**5.3**
	9/16/2019	<0.50/<0.50	<0.50/<0.50	<0.50/<0.50	<0.50/<0.50	<50/<50	<50/<50	**26**	**4.4**	**4.3**	<0.50	**-228**	**0.6**	<0.23	**60**	**1.8**	**2.1**
SM-05	7/10/2019	**19 / 18**	**2.8 / 2.8**	<0.50 / <0.50	<0.50 / <0.50	<50 / <50	<50 / <50	**3.2**	**0.55**	**1.9**	<0.50	**143**	**0.7**	**2.1**	**120**	0	<1.0
	8/19/2019	**19 / 19**	**2.8 / 2.8**	<0.20 / <0.20	<0.020 / <0.020	**810 / 910**	**57B / 56B**	**13**	**4.4**	**8.9**	<0.50	**-60**	**0.5**	<1.0	**79**	**4.2**	<1.0
	9/16/2019	<0.50	**21**	<0.50	<0.50	**700**	**50**	**22**	**4.0**	**8.5**	<0.50	**-58**	**0.8**	<0.23	**1.7**	**3.0**	**23**
Wells Near Northern Property Boundary																	
R-20A	7/10/2019	**840**	**14**	<5.0	<5.0	<500	<500	<0.50	< 0.10	<0.10	<0.50	**120**	**0.1**	**1.6**	**96**	0	<1.0
	8/20/2019	**660**	**11**	**0.68**	**0.11**	<10	<6.0	<0.50	<0.10	**0.10**	<0.50	**-56**	**1.3**	**6.7**	**95**	0	<1.0
	9/16/2019	**750**	**15**	<10	<10	<1,000	<1,000	**0.67**	**0.28**	**0.11**	<0.50	**-47**	**0.9**	**1.4**	**94**	**0.8**	<1.0
C-3	7/10/2019	**930**	**13**	**0.51**	< 0.50	<50	<50	NA	NA	NA	NA	**129**	**0.5**	**2.8**	**96**	NA [2]	**26**
	8/20/2019	**250**	**86**	**0.49**	**0.30**	<10	<6.0	NA	NA	NA	NA	**-115**	**0.7**	<1.0	**88**	**2.0**	<1.0
	9/16/2019	**87**	**140**	<2.5	<2.5	<250	<250	NA	NA	NA	NA	**-88**	**1.3**	<0.23	**85**	**0.8**	<1.0
EW-1	11/8/2018	**59**	**5.7**	<0.50	<0.50	<5.0	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/2019	**8.0**	**12**	<0.20	**0.24**	**32**	<6.0	NA	NA	NA	NA	**-191**	**0.6**	NA	NA	NA	NA
	9/16/2019	**11**	**66**	<0.50	<0.50	**83**	<50	NA	NA	NA	NA	**-274**	**3.0**	NA	NA	NA	NA
EW-3	11/8/2018	**51**	**3.3**	<0.50	<0.50	<5.0	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/2019	**0.26**	**14**	<0.20	<0.020	<10	**32**	NA	NA	NA	NA	**-315**	**0.6**	NA	NA	NA	NA
	9/16/2019	<0.50 / <0.50	**18 / 17**	<0.50 / <0.50	**0.57 / 0.61**	<50 / <50	<50 / <50	NA	NA	NA	NA	**-315**	**7.9**	NA	NA	NA	NA
Downgradient Well to North (North Side of Road)																	
R-15A	6/28/2019	**58**	**1.3**	<0.50	<0.50	<50	<50	NA	NA	NA	NA	**110**	**3.3**	**6.1**	**100**	0	**1.2**
	8/20/2019	**37**	**1.3**	<0.20	<0.020	<10	<6.0	NA	NA	NA	NA	**27**	**1.2**	**3.0**	**98**	**0.80**	**23**
	9/17/2019	**37**	**5.5**	<0.50	<0.50	<50	<50	NA	NA	NA	NA	**14**	**2.7**	<0.23	**58**	0	<1.0

Notes:
Detections are shown in **bold** fonts. Baseline (pre-injection) sampling results are shaded grey.
[1] Reading may not be accurate due to persistent high turbidity (>1,000 NTUs) during sampling.
[2] Water too turbid for ferrous iron field measurement with Hach kit.
µg/L = micrograms per liter.
mg/L = milligram per liter.
mV = millivolt.
NA = not applicable or not analyzed.
TCE = trichloroethene; DCE = dichloroethene; MEK = methyl ethyl ketone; DO = dissolved oxygen; ORP = oxidation-reduction potential.
< 0.50 = analyte not detected at or above the laboratory reporting limit indicated.
B = Compound was found in blank and sample.
ZVI = zero valent iron.
Laboratory analysis performed by Eurofins/TestAmerica, Inc. of Pleasanton, CA, except dissolved gases which were analyzed by Pace Analytical in Pittsburgh, PA.

ILLUSTRATIONS

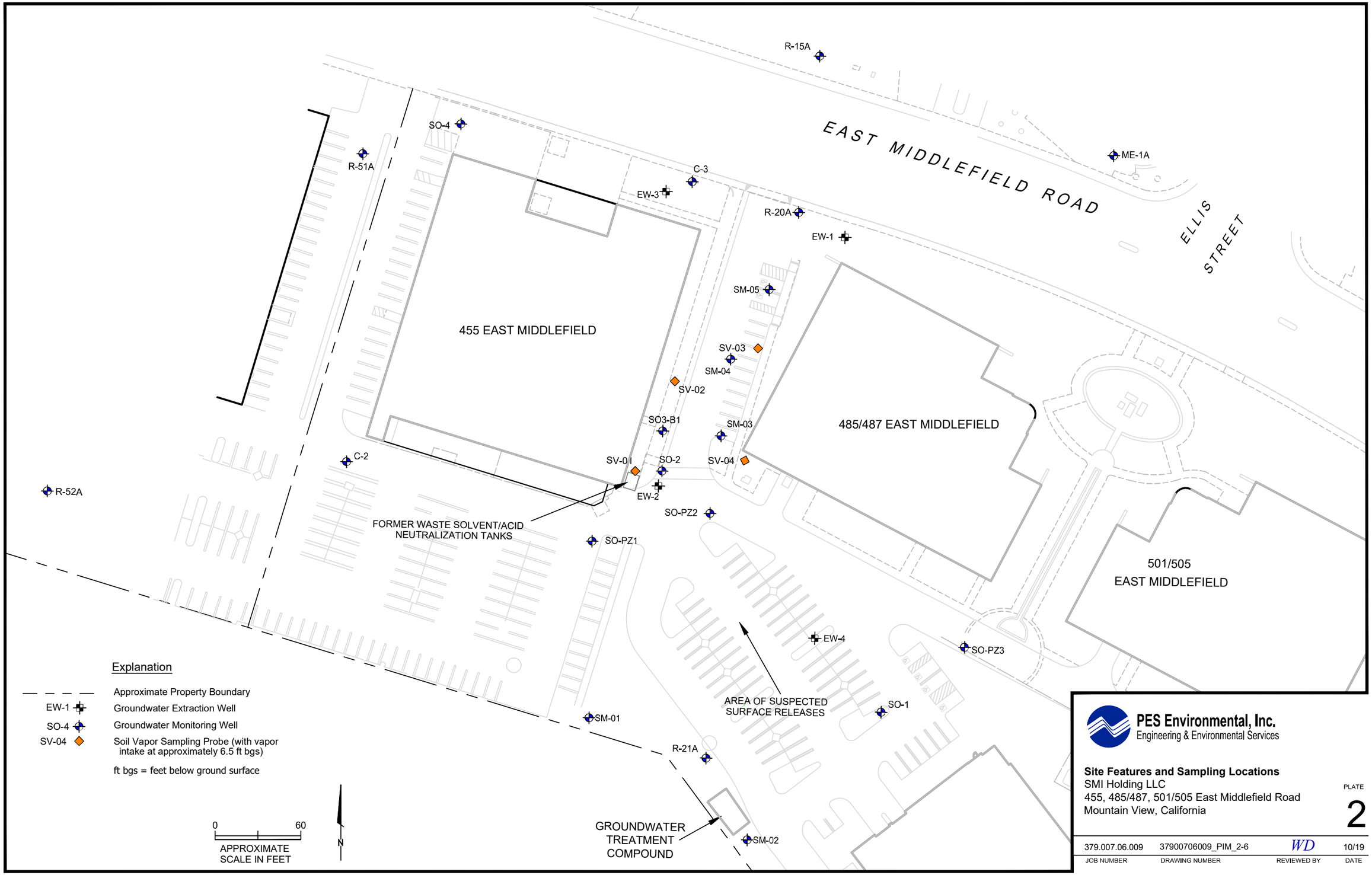


PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE
1

379.007.06.009	37900706009_PIM_1	WD	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

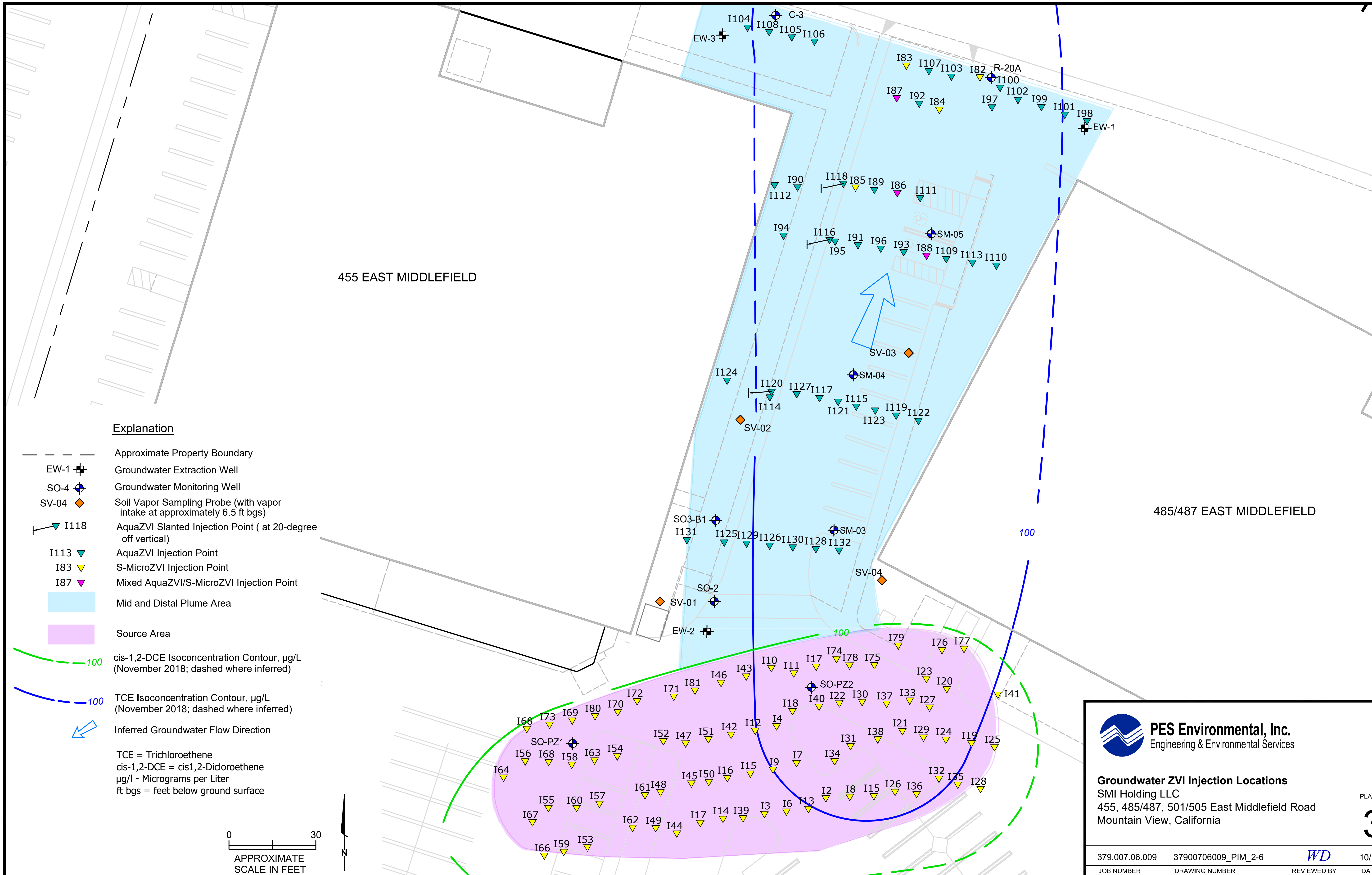


PES Environmental, Inc.
Engineering & Environmental Services

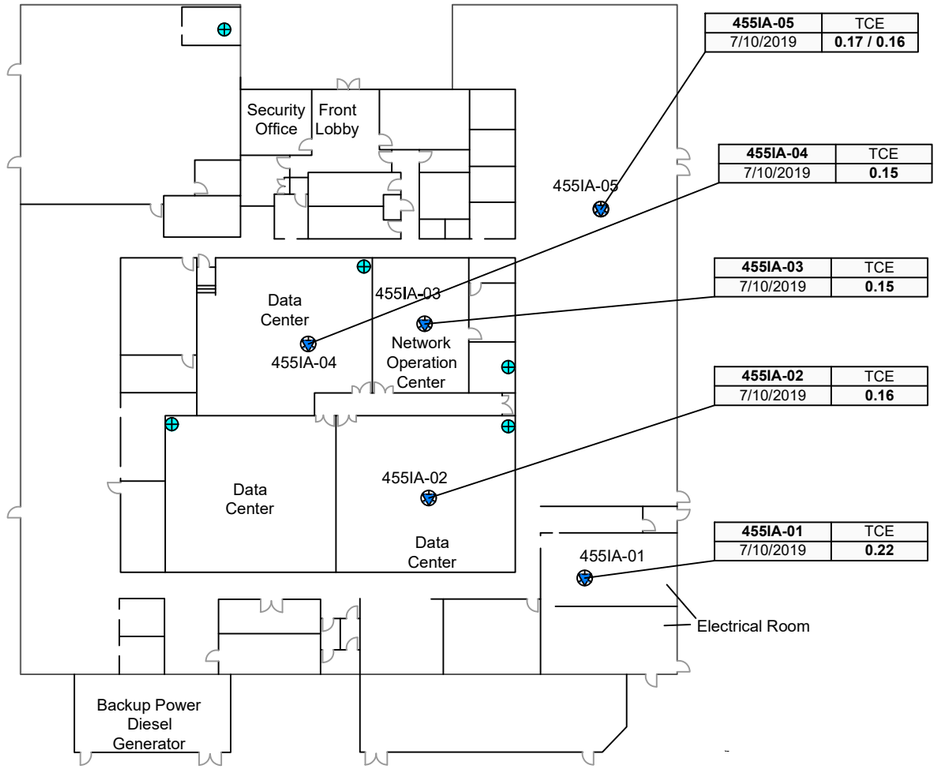
Site Features and Sampling Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 2

379.007.06.009	37900706009_PIM_2-6	WD	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE


455 EAST MIDDLEFIELD
485/487 EAST MIDDLEFIELD
EW-1
EW-2
EW-3
C-3
R-20A
SM-03
SM-04
SM-05
SO-2
SO3-B1
SO-PZ1
SO-PZ2
SV-01
SV-02
SV-03
SV-04
100
Explanation
Approximate Property Boundary
EW-1 Groundwater Extraction Well
SO-4 Groundwater Monitoring Well
SV-04 Soil Vapor Sampling Probe (with vapor intake at approximately 6.5 ft bgs)
I118 AquaZVI Slanted Injection Point (at 20-degree off vertical)
I113 AquaZVI Injection Point
I83 S-MicroZVI Injection Point
I87 Mixed AquaZVI/S-MicroZVI Injection Point
Mid and Distal Plume Area
Source Area
100 cis-1,2-DCE Isoconcentration Contour, µg/L (November 2018; dashed where inferred)
100 TCE Isoconcentration Contour, µg/L (November 2018; dashed where inferred)
Inferred Groundwater Flow Direction
TCE = Trichloroethene
cis-1,2-DCE = cis1,2-Dicloroethene
µg/l - Micrograms per Liter
ft bgs = feet below ground surface
0
30
APPROXIMATE SCALE IN FEET
N
PES Environmental, Inc.
Engineering & Environmental Services
Groundwater ZVI Injection Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California
PLATE
3
379.007.06.009
JOB NUMBER
37900706009_PIM_2-6
DRAWING NUMBER
WD
REVIEWED BY
10/19
DATE

455 East Middlefield Road (First Floor)



455IA-05	TCE
7/10/2019	**0.17 / 0.16**

455IA-04	TCE
7/10/2019	**0.15**

455IA-03	TCE
7/10/2019	**0.15**

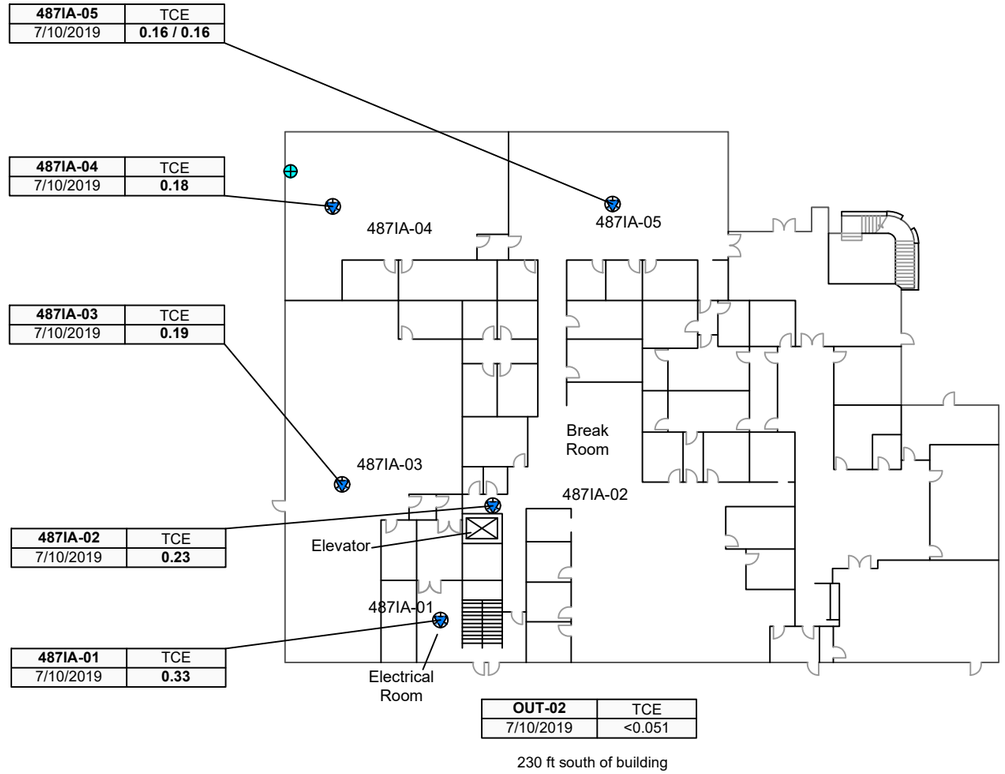
455IA-02	TCE
7/10/2019	**0.16**

455IA-01	TCE
7/10/2019	**0.22**

OUT-01	TCE
7/10/2019	<0.051

120 ft south of building

485/487 East Middlefield Road (First Floor)



487IA-05	TCE
7/10/2019	**0.16 / 0.16**

487IA-04	TCE
7/10/2019	**0.18**

487IA-03	TCE
7/10/2019	**0.19**

487IA-02	TCE
7/10/2019	**0.23**

487IA-01	TCE
7/10/2019	**0.33**

OUT-02	TCE
7/10/2019	<0.051

230 ft south of building

Explanation

487IA-04 Indoor Air Sample (Approximate Location)

Fire Riser (Approximate Location)

Notes:
EMR = East Middlefield Road
All results are shown in microgram per cubic meter ($\mu g/m^3$).
Detections are in **bold** fonts.
<0.051 = Not detected at or above the indicated laboratory reporting limit.
HVAC = Heating, Ventilation and Air Conditioning
0.17 / 0.16 = Sample / Duplicate Sample
TCE = Trichloroethene

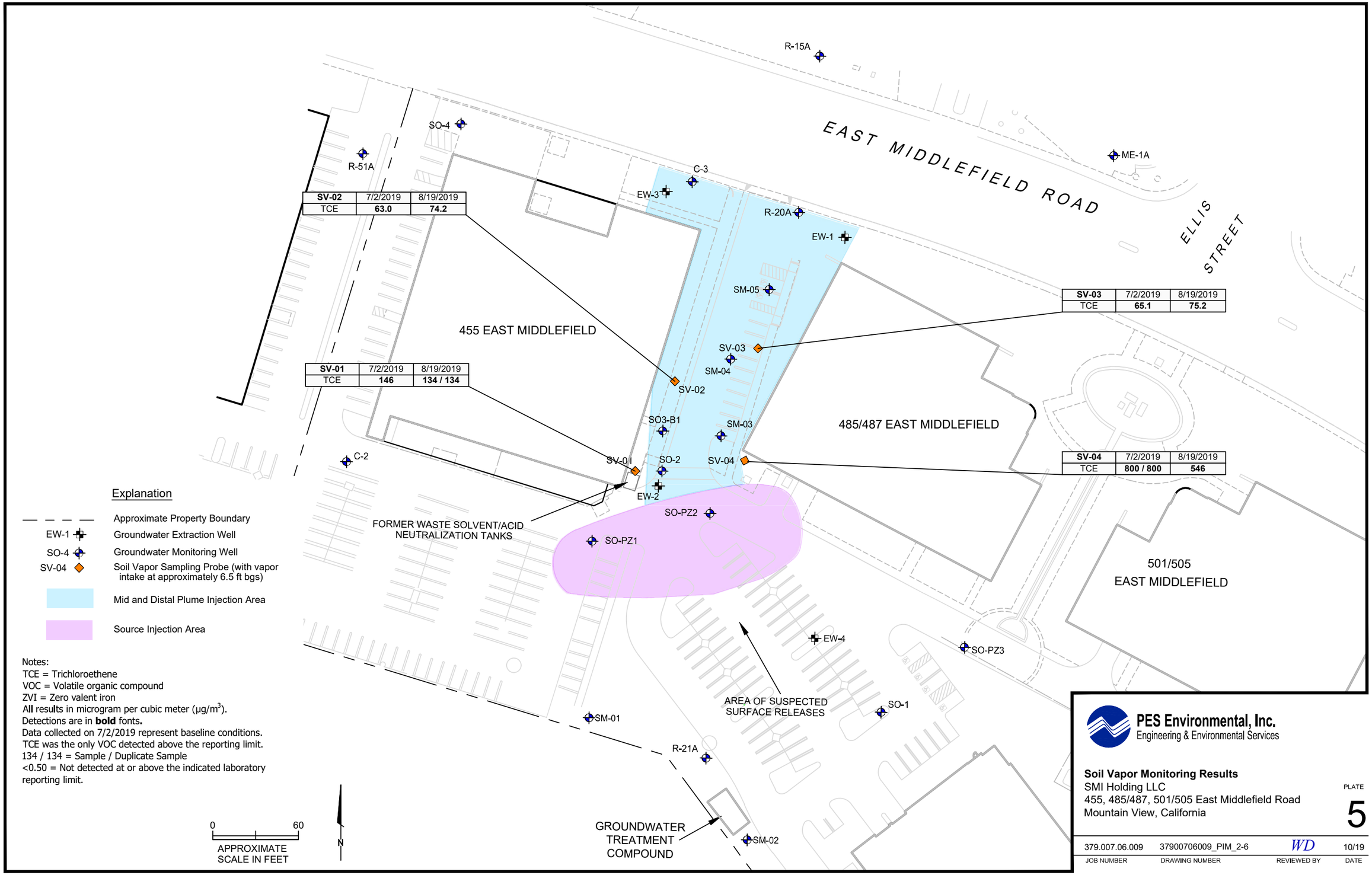
0 40
APPROXIMATE SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

Indoor Air Monitoring Results (HVAC Off)
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 4

379.007.06.009	37900706009_PIM_2-6	WD	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



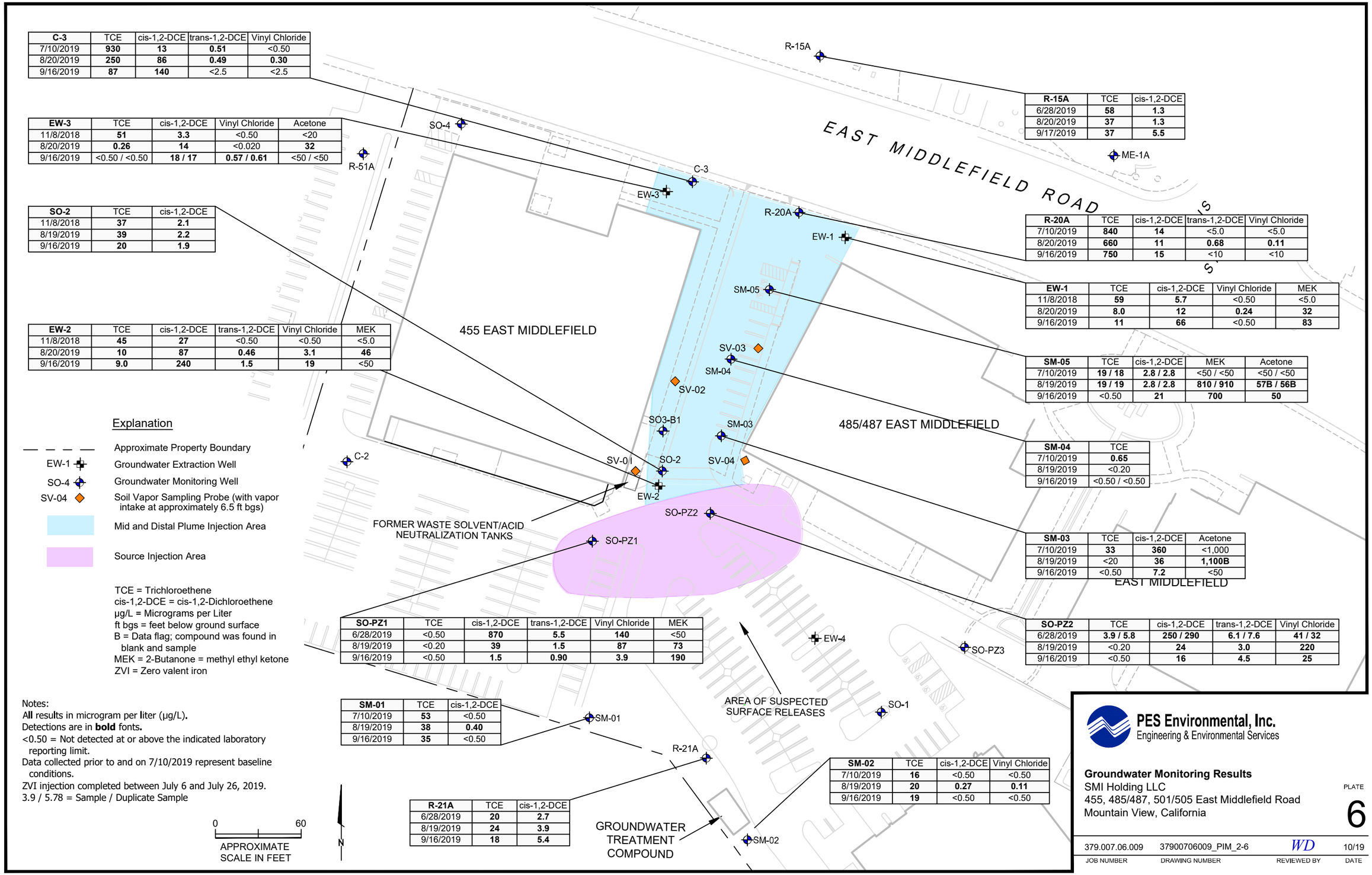
Notes:
TCE = Trichloroethene
VOC = Volatile organic compound
ZVI = Zero valent iron
All results in microgram per cubic meter ($\mu g/m^3$).
Detections are in **bold** fonts.
Data collected on 7/2/2019 represent baseline conditions.
TCE was the only VOC detected above the reporting limit.
134 / 134 = Sample / Duplicate Sample
<0.50 = Not detected at or above the indicated laboratory reporting limit.

PES Environmental, Inc.
Engineering & Environmental Services

Soil Vapor Monitoring Results
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 5

379.007.06.009	37900706009_PIM_2-6	WD	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



C-3	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
7/10/2019	**930**	**13**	**0.51**	<0.50
8/20/2019	**250**	**86**	**0.49**	**0.30**
9/16/2019	**87**	**140**	<2.5	<2.5

EW-3	TCE	cis-1,2-DCE	Vinyl Chloride	Acetone
11/8/2018	**51**	**3.3**	<0.50	<20
8/20/2019	**0.26**	**14**	<0.020	**32**
9/16/2019	<0.50 / <0.50	**18 / 17**	**0.57 / 0.61**	<50 / <50

SO-2	TCE	cis-1,2-DCE
11/8/2018	**37**	**2.1**
8/19/2019	**39**	**2.2**
9/16/2019	**20**	**1.9**

EW-2	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	MEK
11/8/2018	**45**	**27**	<0.50	<0.50	<5.0
8/20/2019	**10**	**87**	**0.46**	**3.1**	**46**
9/16/2019	**9.0**	**240**	**1.5**	**19**	<50

R-15A	TCE	cis-1,2-DCE
6/28/2019	**58**	**1.3**
8/20/2019	**37**	**1.3**
9/17/2019	**37**	**5.5**

R-20A	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
7/10/2019	**840**	**14**	<5.0	<5.0
8/20/2019	**660**	**11**	**0.68**	**0.11**
9/16/2019	**750**	**15**	<10	<10

EW-1	TCE	cis-1,2-DCE	Vinyl Chloride	MEK
11/8/2018	**59**	**5.7**	<0.50	<5.0
8/20/2019	**8.0**	**12**	**0.24**	**32**
9/16/2019	**11**	**66**	<0.50	**83**

SM-05	TCE	cis-1,2-DCE	MEK	Acetone
7/10/2019	**19 / 18**	**2.8 / 2.8**	<50 / <50	<50 / <50
8/19/2019	**19 / 19**	**2.8 / 2.8**	**810 / 910**	**57B / 56B**
9/16/2019	<0.50	**21**	**700**	**50**

SM-04	TCE
7/10/2019	**0.65**
8/19/2019	<0.20
9/16/2019	<0.50 / <0.50

SM-03	TCE	cis-1,2-DCE	Acetone
7/10/2019	**33**	**360**	<1,000
8/19/2019	<20	**36**	**1,100B**
9/16/2019	<0.50	**7.2**	<50

SO-PZ2	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
6/28/2019	**3.9 / 5.8**	**250 / 290**	**6.1 / 7.6**	**41 / 32**
8/19/2019	<0.20	**24**	**3.0**	**220**
9/16/2019	<0.50	**16**	**4.5**	**25**

SO-PZ1	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	MEK
6/28/2019	<0.50	**870**	**5.5**	**140**	<50
8/19/2019	<0.20	**39**	**1.5**	**87**	**73**
9/16/2019	<0.50	**1.5**	**0.90**	**3.9**	**190**

SM-01	TCE	cis-1,2-DCE
7/10/2019	**53**	<0.50
8/19/2019	**38**	**0.40**
9/16/2019	**35**	<0.50

R-21A	TCE	cis-1,2-DCE
6/28/2019	**20**	**2.7**
8/19/2019	**24**	**3.9**
9/16/2019	**18**	**5.4**

SM-02	TCE	cis-1,2-DCE	Vinyl Chloride
7/10/2019	**16**	<0.50	<0.50
8/19/2019	**20**	**0.27**	**0.11**
9/16/2019	**19**	<0.50	<0.50

Explanation

- Approximate Property Boundary
- EW-1: Groundwater Extraction Well
- SO-4: Groundwater Monitoring Well
- SV-04: Soil Vapor Sampling Probe (with vapor intake at approximately 6.5 ft bgs)
- Mid and Distal Plume Injection Area
- Source Injection Area

TCE = Trichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
µg/L = Micrograms per Liter
ft bgs = feet below ground surface
B = Data flag; compound was found in blank and sample
MEK = 2-Butanone = methyl ethyl ketone
ZVI = Zero valent iron

Notes:
All results in microgram per liter (µg/L).
Detections are in **bold** fonts.
<0.50 = Not detected at or above the indicated laboratory reporting limit.
Data collected prior to and on 7/10/2019 represent baseline conditions.
ZVI injection completed between July 6 and July 26, 2019.
3.9 / 5.78 = Sample / Duplicate Sample

PES Environmental, Inc.
Engineering & Environmental Services

Groundwater Monitoring Results
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 6

379.007.06.009	37900706009_PIM_2-6	WD	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

SCVWD WELL CONSTRUCTION PERMITS

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 2

TO BE COMPLETED BY DISTRICT

District Permit No.: W2019053001	Date Issued: 5/30/19	Well Registration No.:
Geologic Setting:	Expiration Date: 5/30/20	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: Buildings are vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable

Owner's/Consultant's Well No.: SM-01 | Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site | Caseworker Name: Alana Lee

Oversight Agency: U.S. EPA (Region IX) | Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional | Date: 5/17/19 | Print Name: Gary Thomas (No substitution of signature will be accepted)

Civil Engineer Registration No. | OR | Geologist Registration No.: No. 8278

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent:
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date: 5/17/19	Print Name of Consultant/Agent: Gary Thomas (PES Environmental, Inc.)

RECEIVED
WELLS

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.:	Date Issued:	Well Registration No.:
Geologic Setting:	Expiration Date:	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: 455-Digicert,Inc.; 485/487-vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC 222 SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song,Esq.)	Telephone No.: Not Applicable

Owner's/Consultant's Well No.: SM 01 | Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional | Date | Gary Thomas Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No. OR No. 8278 Geologist Registration No.

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date: May 28, 2019	Print Name of Property Owner/Agent: Eunice Kim
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date:	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose CA 95118 3686
(408) 265 2600

WELL CONSTRUCTION APPLICATION

FC 158 (03 26 15)

TO BE COMPLETED BY DISTRICT

District Permit No | Date Issued | Well Registration No
Geologic Setting | Expiration Date | Driller's Log No

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner:	Property Owner	Name of Business at Well Site
[illegible] Holding, LLC	[illegible] 433 LLC	[illegible]
Well Owner's Mailing Address:	**Property Owner's Mailing Address**	**Address of Well Site**
[illegible] Quadrangle Boulevard, MC [illegible]	350 Ellis Street	[illegible]
City, State, Zip	**City, State, Zip**	**City State Zip**
Orlando, FL 32817	Mountain View, CA 94043	Mountain View, California
Telephone No & Contact Name:	**Telephone No & Contact Name**	**Telephone No**
407-410-3204	650-527 0000 (c/o Margaret Song, Esq)	Not Applicable

Owner's/Consultant's Well No: SM-01 Assessor's Parcel No. of Well Site Book 160 Page [illegible] Parcel [illegible]

Consultant (Company)	Drilling Company	
[illegible]	[illegible]	
Address:	Address:	
[illegible] Boulevard, Suite [illegible]	[illegible]	
City, State, Zip [illegible] CA 94[illegible]	City, State, Zip Woodland, CA [illegible]	
Telephone No	Telephone No:	C 57 License No:
[illegible]-599-160[illegible]	530-[illegible]	[illegible]
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No. [illegible] NEW Site | Caseworker Name: [illegible]
Oversight Agency U.S. EPA (Region [illegible]) | Caseworker Telephone No [illegible]

Signature of Responsible Professional | Date | Print Name Gary [illegible] | (No substitution of signature will be accepted)

Civil Engineer Registration No OR Geologist Registration No [illegible]

Estimated Depth of Completed Well ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other

Well is to be constructed ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural	☒ GW Level	☐ Air Sparge	☐ Permanent	☐ Closed Loop	☐ Groundwater Cleanup Reinjection		
☐ Domestic	☒ GW Quality	☐ GW Extraction	☐ Temporary	☐ Open Loop	☐ Stormwater		
☐ Industrial	☐ Inclinometer	☐ Material Emplacement			☐ Water Supply Recharge		
☐ Municipal	☐ Vapor	☐ Vapor Extraction			☐ Other		
	☐ Other	☐ Other					

Other wells exist on this property? ☒ Yes ☐ No If yes status ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90 1 the District Well Standards and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below whether original electronic or photocopied is authorized and valid and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility as the well owner to notify the District of any changes in the purpose of this well from which is indicated on this application.

Signature of Property Owner/Agent | Date | Print Name of Property Owner/Agent

Signature of Well Owner/Agent | Date | Print Name of Well Owner/Agent

Signature of Well Driller/Agent [signature] | Date 5-14-19 | Print Name of Driller/Agent TUAN NGUYEN

Signature of Consultant/Agent | Date | Print Name of Consultant/Agent

IMPORTANT: A minimum 24 hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

DISTRICT WELL PERMIT NO.: C20190530001

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District (telephone 408-265-2607, ext. 2660) must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

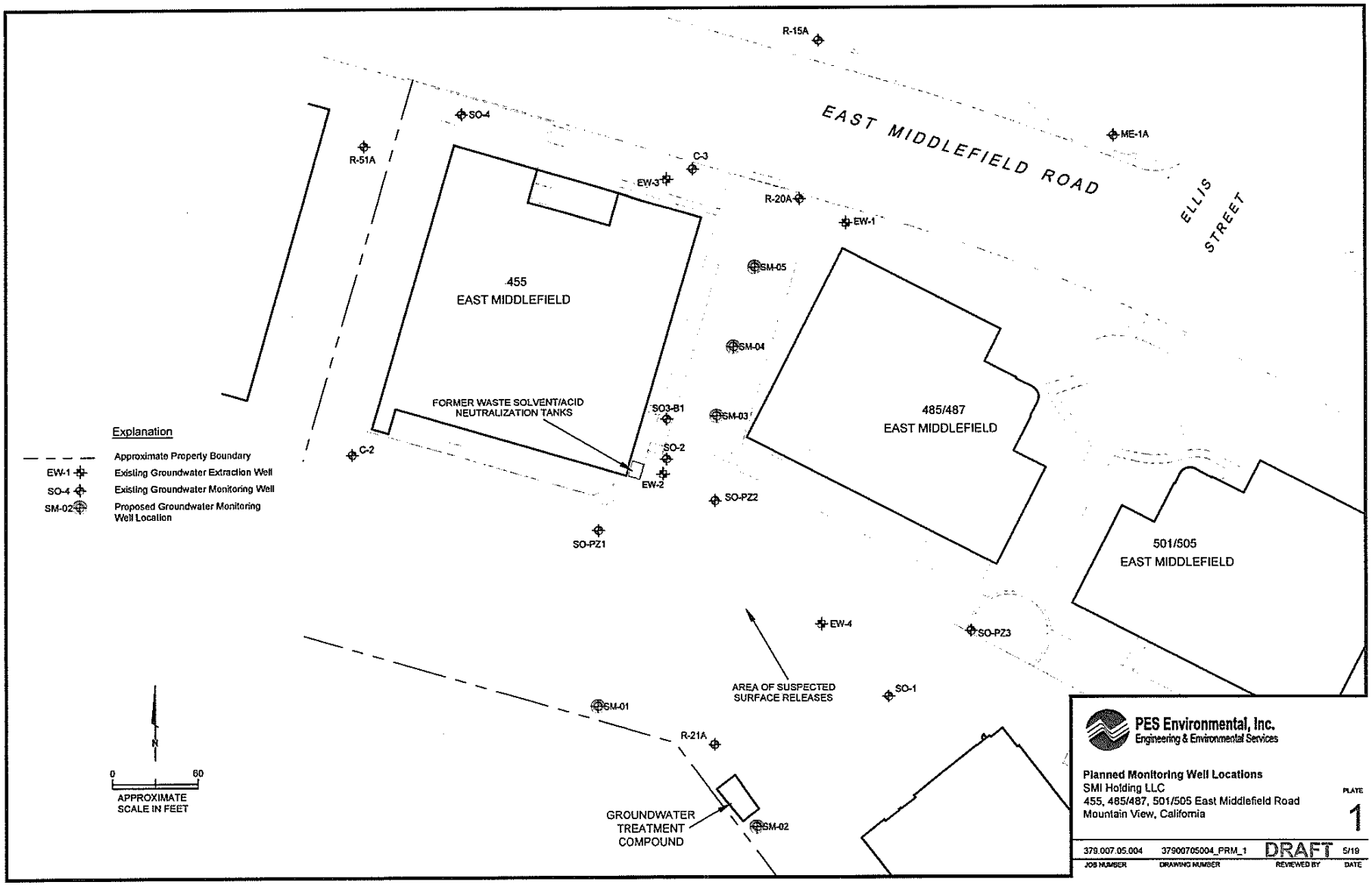
P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by: Alexis Shields	Date: 5/30/2019

Please allow 10 working days to process this application



PES Environmental, Inc.
Engineering & Environmental Services

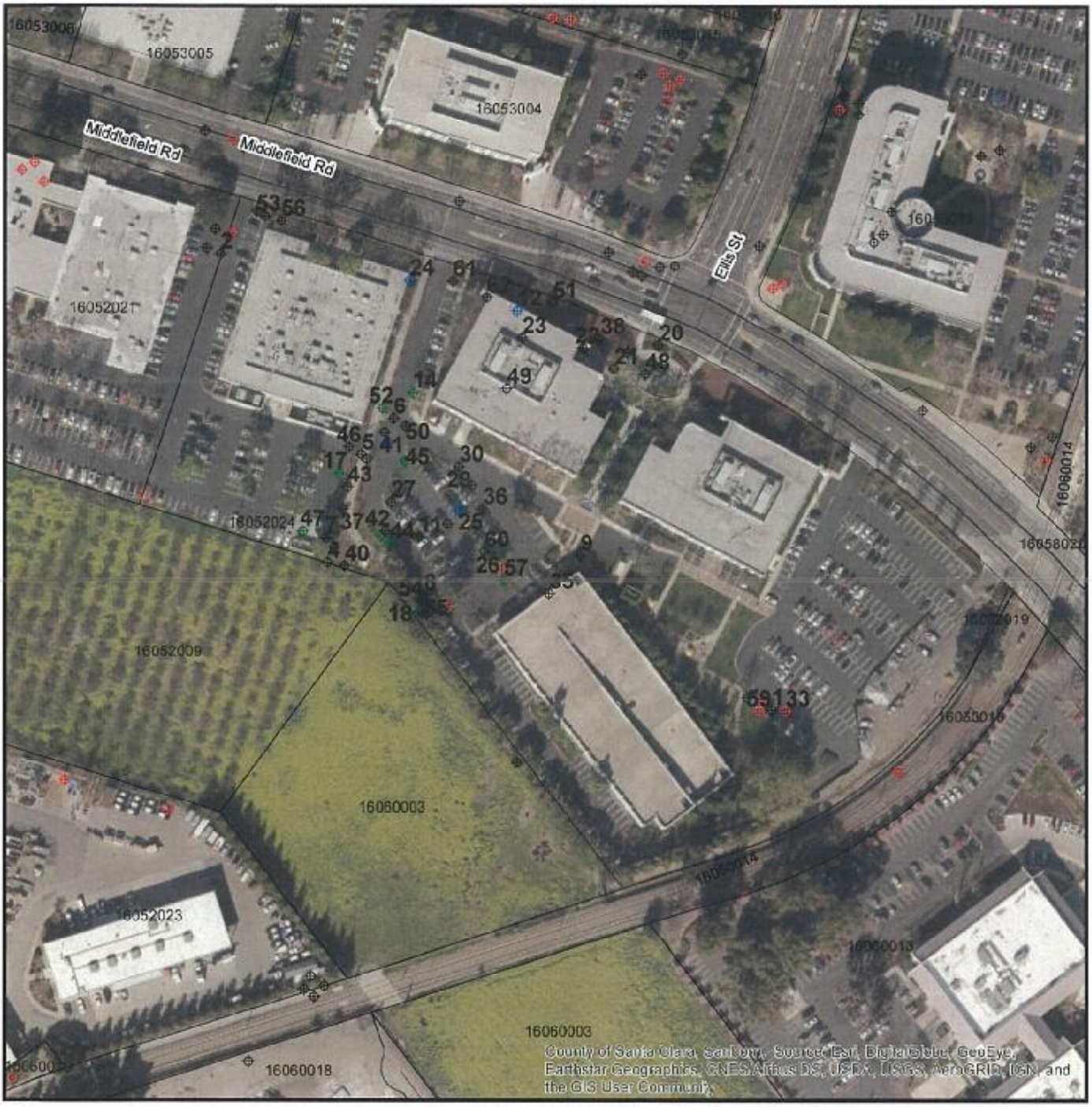
Planned Monitoring Well Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 1

379.007.05.004	37900705004_PRM_1	DRAFT	5/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

EMBP 455, 485/487 LLC

APN 160-52-024
MOUNTAIN VIEW, CA



Approximate Scale

0 — 500 — 1,000 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/30/2019

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	R22B-1	86W1400	06S02W23L012	A
2	R50B-2	87W0305	06S02W23E126	A
3	R53B(3)	87W0308	06S02W23L016	A
4	R54B-3	87W0309	06S02W23L018	A
5	MW-2	89W1535	06S02W23L025	A
6	SB03-B1	92W0313	06S02W23L026	A
7	B-22	93W0561	06S02W23M042	A
8	VP-PZ-1	93W0596	06S02W23L030	A
9	SO-PZ-3	93W0558	06S02W23L031	A
10	SO-PZ-2	93W0557	06S02W23M044	A
11	B-17	92W0318	06S02W23L033	A
12	EW-1	95W00385	06S02W23L036	A01
13	VE-5	95W00402	06S02W23L040	A02
14	VE-3	95W00395	06S02W23E266	A02
15	AS-3	95W00399	06S02W23E262	A
16	AS-5	95W00407	06S02W23L038	A
17	VE-4	95W00396	06S02W23E264	A02
18	VE-8	95W00404	06S02W23L039	A02
19	VP-2	95W00387	06S02W23L048	A
20	VP-3	95W00388	06S02W23L052	A
21	VP-5	95W00390	06S02W23L050	A
22	VP-6	95W00391	06S02W23L051	A
23	VP-7	95W00408	06S02W23L045	A
24	EW-3	97W00259	06S02W23L054	A01
25	EW 4	97W00260	06S02W23L056	A01
26		98D00048	UNREGISTERED	D
27	AS-2	95W00406	06S02W23L037	A
28	EW 2	97W00258	06S02W23L053	A01
29	PZ-3	00W01140	06S02W23L059	A
30	PZ-4	00W01141	06S02W23L060	A
31	R49B2	97D01401	06S02W23E125	D
32		92D0116	UNREGISTERED	D
33	R48B(3)	97D01402	06S02W23L015	D
34	PZ-1	00W01138	06S02W23E332	A
35	MW-2	89W1536	06S02W23L024	A
36	B-24	93W0555	06S02W23L032	A
37	AS-1	95W00398	06S02W23E265	A
38	VP-1	95W00386	06S02W23L047	A
39	R22B-2	86W1783	06S02W23L011	A
40	R52B2	87W0307	06S02W23L014	A
41	S0-2(R)	90W2399	06S02W23M033	A
42	B-23	93W0554	06S02W23L029	A
43	SO-PZ-1	93W0559	06S02W23M043	A
44	VE-2	95W00401	06S02W23L042	A02
45	VE-6	95W00403	06S02W23L041	A02
46	AS-4	95W00400	06S02W23E263	A

47	VE-1	95W00394	06S02W23E267	A02
48	VP-4	95W00389	06S02W23L049	A
49	VP-8	95W00392	06S02W23L044	A
50	B-15	92W0316	06S02W23L028	A
51	VP-10	95W00409	06S02W23L046	A
52	VE 7	95W00397	06S02W23L057	A02
53	PZ-2	00W01139	06S02W23E333	A
54	R21A	85W1185	06S02W23L002	A
55	RP22B	85W1710	06S02W23L006	A
56	SO-4	95W00384	06S02W23E261	A
57	VE 9	95W00405	06S02W23L058	A02
58	R-47A	01D00421	06S02W23L010	D
59	R47B-2	97D01253	06S02W23L017	D
60	B-18	92W0319	06S02W23L027	A
61	VP-9	95W00393	06S02W23L043	A
62	R-20A	85W0626	06S02W23L001	A

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.: C2019053D002	Date Issued: 5/30/19	Well Registration No.:
Geologic Setting:	Expiration Date: 5/30/20	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: Buildings are vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable

Owner's/Consultant's Well No.: SM-02

Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site

Caseworker Name: Alana Lee

Oversight Agency: U.S. EPA (Region IX)

Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date: 5/17/19 — Gary Thomas (Print Name) — (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — No. 8278 Geologist Registration No.

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

MAY 29 2019
S.C.V.W.D.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent:
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date: 5/17/19	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT		
District Permit No.:	Date Issued:	Well Registration No.:
Geologic Setting:	Expiration Date:	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER		
Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: 455-Digicert,Inc.; 485/487-vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE	Property Owner's Mailing Address: 350 Ellis Street	**Address of Well Site:** 455 & 485/487 East Middlefield Road
City, State, Zip Orlando, FL 32817	City, State, Zip Mountain View, CA 94043	City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song,Esq.)	Telephone No.: Not Applicable

Owner's/Consultant's Well No.: SM-02

Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site

Caseworker Name: Alana Lee

Oversight Agency: U.S. EPA (Region IX)

Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date — Gary Thomas (Print Name) — (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — No. 8278 (Geologist Registration No.)

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

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Signature of Property Owner/Agent:	Date: May 28, 2019	Print Name of Property Owner/Agent: Eunice Kim
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date:	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118 3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26 15)

TO BE COMPLETED BY DISTRICT

District Permit No	Date Issued	Well Registration No
Geologic Setting	Expiration Date	Driller's Log No.

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner	Property Owner	Name of Business at Well Site
Well Owner's Mailing Address	Property Owner's Mailing Address	Address of Well Site
City State Zip	City State Zip	City, State, Zip
Telephone No & Contact Name	Telephone No & Contact Name	Telephone No

Owner's/Consultant's Well No. | Assessor's Parcel No of Well Site | Book | Page | Parcel

Consultant (Company):	Drilling Company
Address	Address
City State Zip	City State Zip
Telephone No	Telephone No / C 57 License No
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No | Caseworker Name
Oversight Agency | Caseworker Telephone No

Signature of Responsible Professional | Date | Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No — OR — Geologist Registration No

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property easement*
*See General Condition F page 2

WELL TYPE/USE

☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
☐ Agricultural	☒ GW Level	☐ Air Sparge	☐ Permanent	☐ Closed Loop	☐ Groundwater Cleanup Reinjection		
☐ Domestic	☒ GW Quality	☐ GW Extraction	☐ Temporary	☐ Open Loop	☐ Stormwater		
☐ Industrial	☐ Inclinometer	☐ Material Emplacement			☐ Water Supply Recharge		
☐ Municipal	☐ Vapor	☐ Vapor Extraction			☐ Other		
	☐ Other	☐ Other					

Other wells exist on this property? ☒ Yes ☐ No If yes, status ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

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Signature of Property Owner/Agent	Date	Print Name of Property Owner/Agent
Signature of Well Owner/Agent	Date	Print Name of Well Owner/Agent
Signature of Well Driller/Agent	Date	Print Name of Driller/Agent
Signature of Consultant/Agent	5-14-19 Date	TUAN NGUYEN Print Name of Consultant/Agent

IMPORTANT: A minimum 24 hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

DISTRICT WELL PERMIT NO.: C2019053000 2

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District (telephone 408-265-2607, ext. 2660) must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

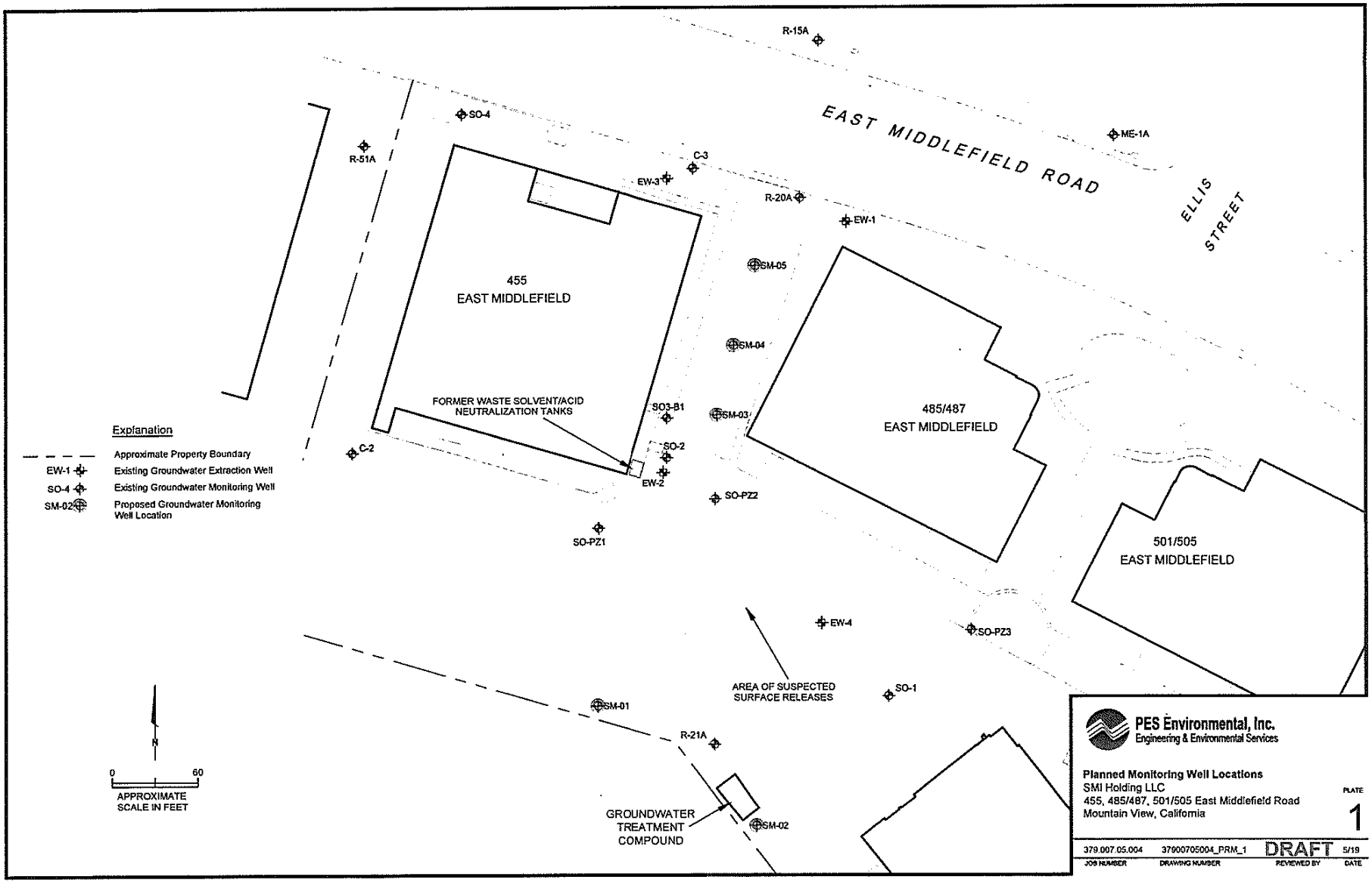
P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 5/30/2019

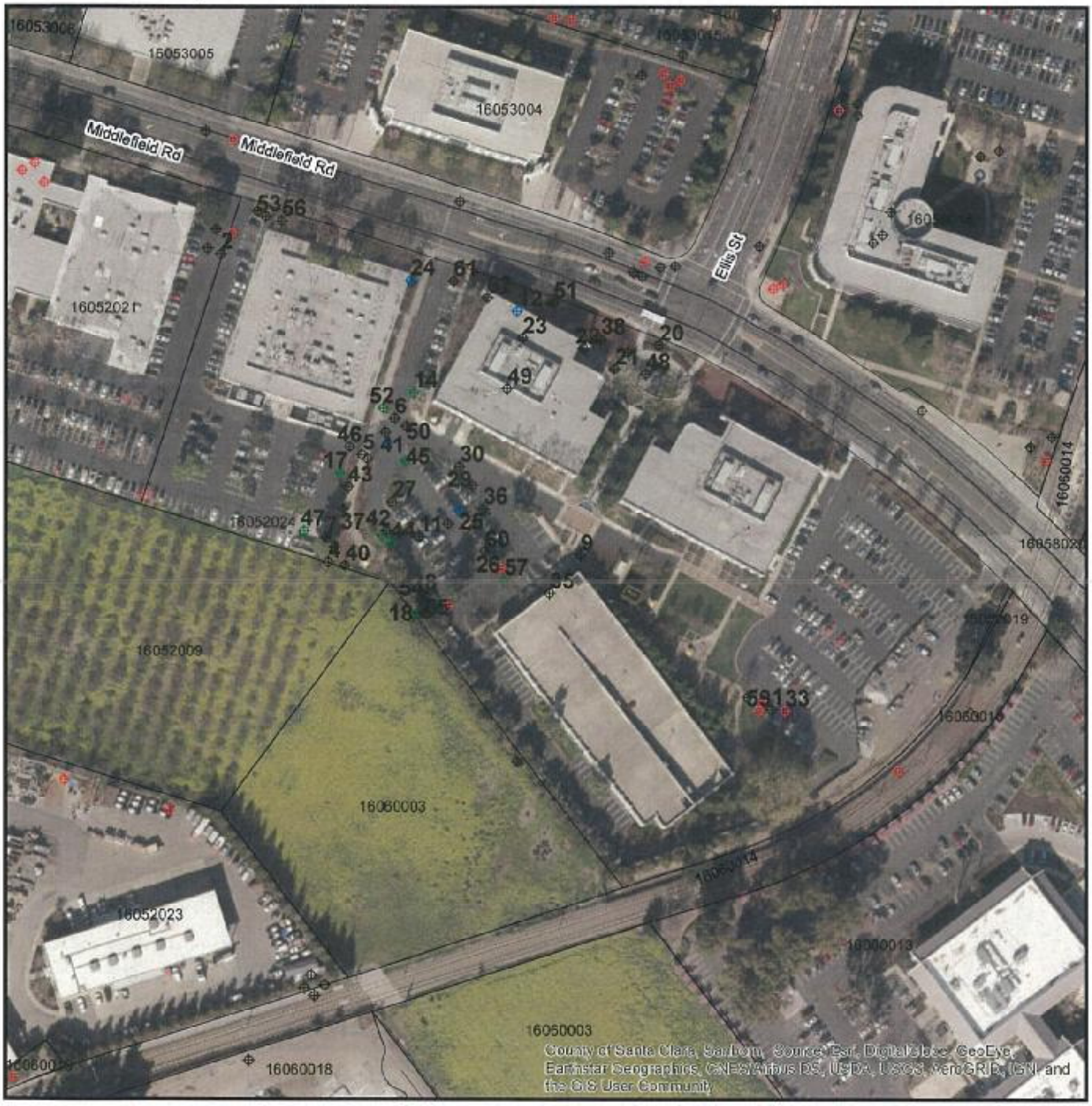
Please allow 10 working days to process this application.


R-15A
EAST MIDDLEFIELD ROAD
ELLIS STREET
ME-1A
SO-4
R-51A
C-3
EW-3
R-20A
EW-1
SM-05
455
EAST MIDDLEFIELD
SM-04
FORMER WASTE SOLVENT/ACID NEUTRALIZATION TANKS
SO3-B1
SM-03
485/487
EAST MIDDLEFIELD
C-2
SO-2
EW-2
SO-PZ2
SO-PZ1
501/505
EAST MIDDLEFIELD
EW-4
SO-PZ3
AREA OF SUSPECTED SURFACE RELEASES
SO-1
SM-01
R-21A
GROUNDWATER TREATMENT COMPOUND
SM-02
Explanation
Approximate Property Boundary
EW-1 Existing Groundwater Extraction Well
SO-4 Existing Groundwater Monitoring Well
SM-02 Proposed Groundwater Monitoring Well Location
N
0
60
APPROXIMATE SCALE IN FEET
PES Environmental, Inc.
Engineering & Environmental Services
Planned Monitoring Well Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California
PLATE
1
379.007.05.004
JOB NUMBER
37900705004_PRM_1
DRAWING NUMBER
DRAFT
REVIEWED BY
5/19
DATE

EMBP 455, 485/487 LLC

APN 160-52-024

MOUNTAIN VIEW, CA



Approximate Scale

0 — 500 — 1,000 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/30/2019

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	R22B-1	86W1400	06S02W23L012	A
2	R50B-2	87W0305	06S02W23E126	A
3	R53B(3)	87W0308	06S02W23L016	A
4	R54B-3	87W0309	06S02W23L018	A
5	MW-2	89W1535	06S02W23L025	A
6	SB03-B1	92W0313	06S02W23L026	A
7	B-22	93W0561	06S02W23M042	A
8	VP-PZ-1	93W0596	06S02W23L030	A
9	SO-PZ-3	93W0558	06S02W23L031	A
10	SO-PZ-2	93W0557	06S02W23M044	A
11	B-17	92W0318	06S02W23L033	A
12	EW-1	95W00385	06S02W23L036	A01
13	VE-5	95W00402	06S02W23L040	A02
14	VE-3	95W00395	06S02W23E266	A02
15	AS-3	95W00399	06S02W23E262	A
16	AS-5	95W00407	06S02W23L038	A
17	VE-4	95W00396	06S02W23E264	A02
18	VE-8	95W00404	06S02W23L039	A02
19	VP-2	95W00387	06S02W23L048	A
20	VP-3	95W00388	06S02W23L052	A
21	VP-5	95W00390	06S02W23L050	A
22	VP-6	95W00391	06S02W23L051	A
23	VP-7	95W00408	06S02W23L045	A
24	EW-3	97W00259	06S02W23L054	A01
25	EW 4	97W00260	06S02W23L056	A01
26		98D00048	UNREGISTERED	D
27	AS-2	95W00406	06S02W23L037	A
28	EW 2	97W00258	06S02W23L053	A01
29	PZ-3	00W01140	06S02W23L059	A
30	PZ-4	00W01141	06S02W23L060	A
31	R49B2	97D01401	06S02W23E125	D
32		92D0116	UNREGISTERED	D
33	R48B(3)	97D01402	06S02W23L015	D
34	PZ-1	00W01138	06S02W23E332	A
35	MW-2	89W1536	06S02W23L024	A
36	B-24	93W0555	06S02W23L032	A
37	AS-1	95W00398	06S02W23E265	A
38	VP-1	95W00386	06S02W23L047	A
39	R22B-2	86W1783	06S02W23L011	A
40	R52B2	87W0307	06S02W23L014	A
41	S0-2(R)	90W2399	06S02W23M033	A
42	B-23	93W0554	06S02W23L029	A
43	SO-PZ-1	93W0559	06S02W23M043	A
44	VE-2	95W00401	06S02W23L042	A02
45	VE-6	95W00403	06S02W23L041	A02
46	AS-4	95W00400	06S02W23E263	A

47	VE-1	95W00394	06S02W23E267	A02
48	VP-4	95W00389	06S02W23L049	A
49	VP-8	95W00392	06S02W23L044	A
50	B-15	92W0316	06S02W23L028	A
51	VP-10	95W00409	06S02W23L046	A
52	VE 7	95W00397	06S02W23L057	A02
53	PZ-2	00W01139	06S02W23E333	A
54	R21A	85W1185	06S02W23L002	A
55	RP22B	85W1710	06S02W23L006	A
56	SO-4	95W00384	06S02W23E261	A
57	VE 9	95W00405	06S02W23L058	A02
58	R-47A	01D00421	06S02W23L010	D
59	R47B-2	97D01253	06S02W23L017	D
60	B-18	92W0319	06S02W23L027	A
61	VP-9	95W00393	06S02W23L043	A
62	R-20A	85W0626	06S02W23L001	A

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.: C2019053 0003	Date Issued: 5/30/19	Well Registration No.:
Geologic Setting:	Expiration Date: 5/30/20	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: Buildings are vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip: Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip: Mountain View, CA 94043	Address of Well Site: 455 & 485/487 East Middlefield Road City, State, Zip: Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-03	Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024	

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip: Novato, CA 94945	Address: 220 N. East Street City, State, Zip: Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date: 5/17/19 — Print Name: Gary Thomas (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — Geologist Registration No.: No. 8278

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE	☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
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Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

RECEIVED MAY 29 2019

SIGNATURES

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Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent:
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
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Signature of Consultant/Agent:	Date: 5/17/19	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

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WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 2

TO BE COMPLETED BY DISTRICT		
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Telephone No. & Contact Name: 407 810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-03	Assessor's Parcel No. of Well Site: Book 160	Page 52 Parcel 024

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional ____ Date ____ Gary Thomas Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No. ____ OR No. 8278 Geologist Registration No.

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE	☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date: May 28, 2019	Print Name of Property Owner/Agent: Eunice Kim
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date:	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607 ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose CA 95118 3686
(408) 265 2600

WELL CONSTRUCTION APPLICATION

FC 158 (03 26 15)

TO BE COMPLETED BY DISTRICT

District Permit No.	Date Issued	Well Registration No
Geologic Setting	Expiration Date	Driller's Log No

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner	Property Owner	Name of Business at Well Site
Well Owner's Mailing Address	Property Owner's Mailing Address	**Address of Well Site**
City, State, Zip	City, State Zip	City, State Zip
Telephone No & Contact Name	Telephone No & Contact Name	Telephone No

Owner's/Consultant's Well No | Assessor's Parcel No of Well Site Book 160 Page 52 Parcel

Consultant (Company)	Drilling Company
Address	Address
City, State Zip	City State Zip Pleasanton, CA
Telephone No	Telephone No / C-57 License No
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No | Caseworker Name Alana Lee

Oversight Agency | Caseworker Telephone No.

Signature of Responsible Professional | Date | Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No OR Geologist Registration No

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other

Well is to be constructed ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F page 2

WELL TYPE/USE

☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
☐ Agricultural	☒ GW Level	☐ Air Sparge	☐ Permanent	☐ Closed Loop	☐ Groundwater Cleanup Reinjection		
☐ Domestic	☒ GW Quality	☐ GW Extraction	☐ Temporary	☐ Open Loop	☐ Stormwater		
☐ Industrial	☐ Inclinometer	☐ Material Emplacement			☐ Water Supply Recharge		
☐ Municipal	☐ Vapor	☐ Vapor Extraction			☐ Other		
	☐ Other	☐ Other					

Other wells exist on this property? ☒ Yes ☐ No If yes, status. ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90 1 the District Well Standards, and the conditions of this permit (see page 2) I certify that the information given in this permit is correct to the best of my knowledge and that the signature below whether original electronic or photocopied is authorized and valid and is affixed with the intent to be enforceable I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner if parties differ I also understand that it is my responsibility as the well owner, to notify the District of any changes in the purpose of this well from which is indicated on this application

Signature of Property Owner/Agent	Date	Print Name of Property Owner/Agent
Signature of Well Owner/Agent	Date	Print Name of Well Owner Agent
Signature of Well Driller/Agent	Date	Print Name of Driller/Agent
Signature of Consultant/Agent	Date 5/14/19	Print Name of Consultant/Agent TUAN NGUYEN

IMPORTANT: A minimum 24 hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

DISTRICT WELL PERMIT NO.: C2019053D003

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District (telephone 408-265-2607, ext. 2660) must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

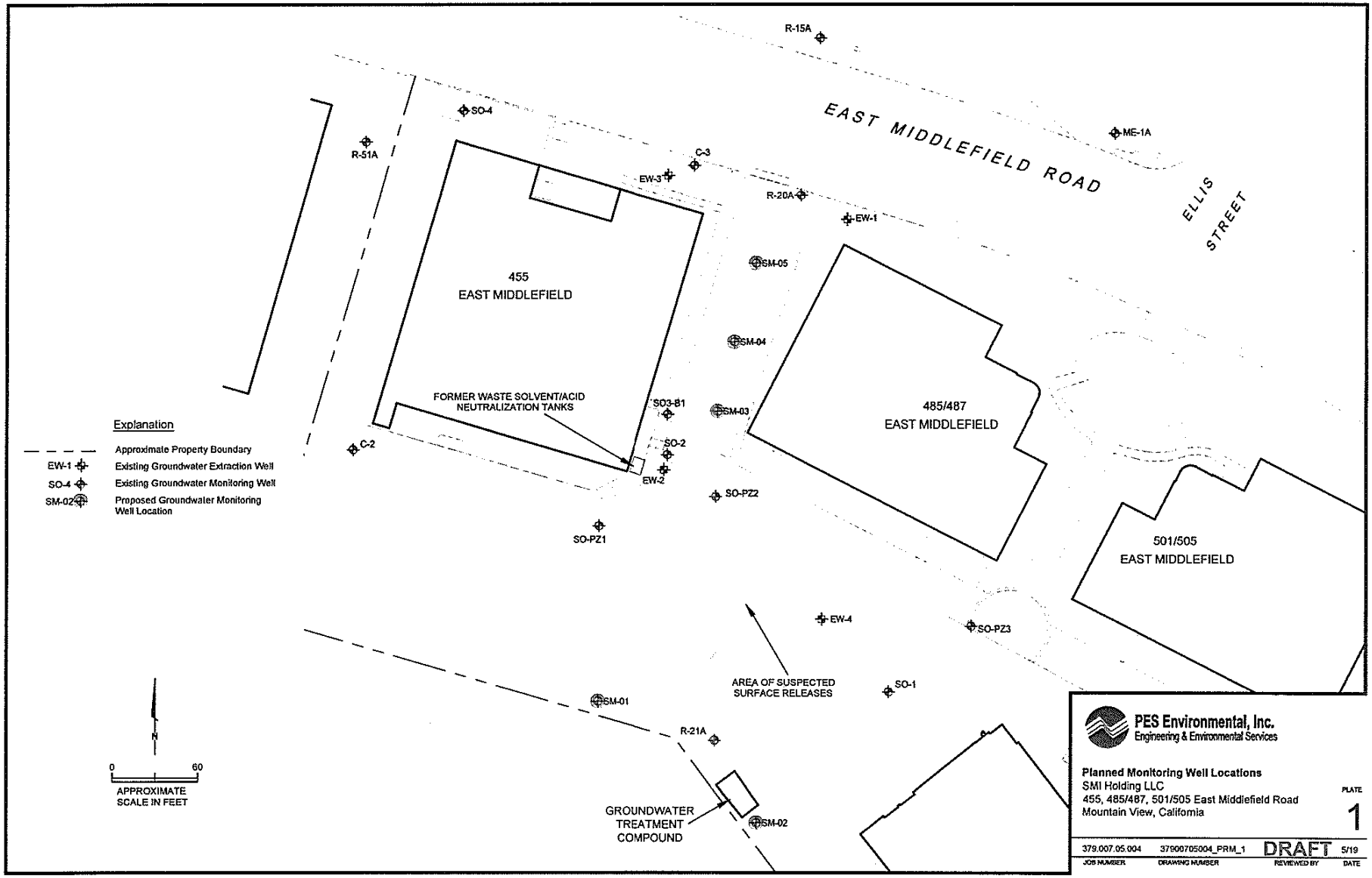
P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 5/30/2019

Please allow 10 working days to process this application



PES Environmental, Inc.
Engineering & Environmental Services

Planned Monitoring Well Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

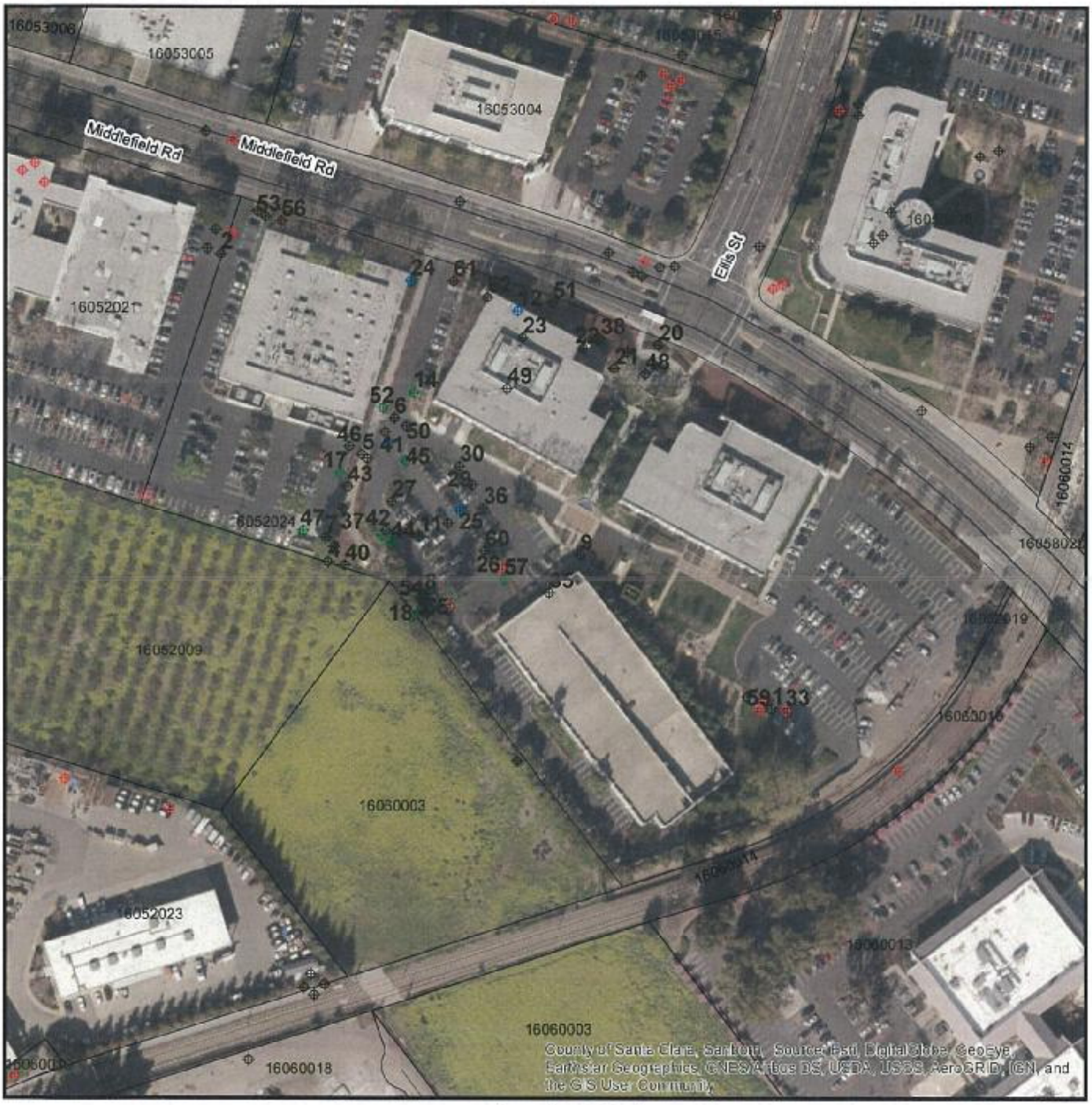
PLATE 1

379.007.05.004	37900705004_PRM_1	DRAFT	5/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

EMBP 455, 485/487 LLC

APN 160-52-024

MOUNTAIN VIEW, CA



Approximate Scale

0 — 500 — 1,000 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/30/2019

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	R22B-1	86W1400	06S02W23L012	A
2	R50B-2	87W0305	06S02W23E126	A
3	R53B(3)	87W0308	06S02W23L016	A
4	R54B-3	87W0309	06S02W23L018	A
5	MW-2	89W1535	06S02W23L025	A
6	SB03-B1	92W0313	06S02W23L026	A
7	B-22	93W0561	06S02W23M042	A
8	VP-PZ-1	93W0596	06S02W23L030	A
9	SO-PZ-3	93W0558	06S02W23L031	A
10	SO-PZ-2	93W0557	06S02W23M044	A
11	B-17	92W0318	06S02W23L033	A
12	EW-1	95W00385	06S02W23L036	A01
13	VE-5	95W00402	06S02W23L040	A02
14	VE-3	95W00395	06S02W23E266	A02
15	AS-3	95W00399	06S02W23E262	A
16	AS-5	95W00407	06S02W23L038	A
17	VE-4	95W00396	06S02W23E264	A02
18	VE-8	95W00404	06S02W23L039	A02
19	VP-2	95W00387	06S02W23L048	A
20	VP-3	95W00388	06S02W23L052	A
21	VP-5	95W00390	06S02W23L050	A
22	VP-6	95W00391	06S02W23L051	A
23	VP-7	95W00408	06S02W23L045	A
24	EW-3	97W00259	06S02W23L054	A01
25	EW 4	97W00260	06S02W23L056	A01
26		98D00048	UNREGISTERED	D
27	AS-2	95W00406	06S02W23L037	A
28	EW 2	97W00258	06S02W23L053	A01
29	PZ-3	00W01140	06S02W23L059	A
30	PZ-4	00W01141	06S02W23L060	A
31	R49B2	97D01401	06S02W23E125	D
32		92D0116	UNREGISTERED	D
33	R48B(3)	97D01402	06S02W23L015	D
34	PZ-1	00W01138	06S02W23E332	A
35	MW-2	89W1536	06S02W23L024	A
36	B-24	93W0555	06S02W23L032	A
37	AS-1	95W00398	06S02W23E265	A
38	VP-1	95W00386	06S02W23L047	A
39	R22B-2	86W1783	06S02W23L011	A
40	R52B2	87W0307	06S02W23L014	A
41	S0-2(R)	90W2399	06S02W23M033	A
42	B-23	93W0554	06S02W23L029	A
43	SO-PZ-1	93W0559	06S02W23M043	A
44	VE-2	95W00401	06S02W23L042	A02
45	VE-6	95W00403	06S02W23L041	A02
46	AS-4	95W00400	06S02W23E263	A

47	VE-1	95W00394	06S02W23E267	A02
48	VP-4	95W00389	06S02W23L049	A
49	VP-8	95W00392	06S02W23L044	A
50	B-15	92W0316	06S02W23L028	A
51	VP-10	95W00409	06S02W23L046	A
52	VE 7	95W00397	06S02W23L057	A02
53	PZ-2	00W01139	06S02W23E333	A
54	R21A	85W1185	06S02W23L002	A
55	RP22B	85W1710	06S02W23L006	A
56	SO-4	95W00384	06S02W23E261	A
57	VE 9	95W00405	06S02W23L058	A02
58	R-47A	01D00421	06S02W23L010	D
59	R47B-2	97D01253	06S02W23L017	D
60	B-18	92W0319	06S02W23L027	A
61	VP-9	95W00393	06S02W23L043	A
62	R-20A	85W0626	06S02W23L001	A

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.: C20190530004	Date Issued: 5/30/19	Well Registration No.:
Geologic Setting:	Expiration Date: 5/30/20	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: Buildings are vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-04	Assessor's Parcel No. of **Well Site**: Book 160 Page 52 Parcel 024	

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date: 5/17/19 — Print Name: Gary Thomas (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — Geologist Registration No.: No. 8278

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2.

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup ☐ Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

RECEIVED MAY 29 2019

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent:
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date: 5/17/19	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 2

TO BE COMPLETED BY DISTRICT		
District Permit No.:	Date Issued:	Well Registration No.:
Geologic Setting:	Expiration Date:	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER		
Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: 455-Digicert,Inc.; 485/487-vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC 222 SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	Address of Well Site: 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650 527-8000 (c/o Margaret Song,Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-04	Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024	

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198 / C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date — Gary Thomas (Print Name) — (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — No. 8278 (Geologist Registration No.)

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

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WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
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Signature of Property Owner/Agent:	Date: May 28, 2019	Print Name of Property Owner/Agent: Eunice Kim
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date:	Print Name of Consultant/Agent:

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.: | Date Issued | Well Registration No
Geologic Setting | Expiration Date: | Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner	Property Owner	Name of Business at Well Site
LLC	EMBP	Buildings are vacant
Well Owner's Mailing Address	**Property Owner's Mailing Address**	**Address of Well Site**
Boulevard	350 Plaza Sunset	455 & 465/467 East Middlefield R
City, State, Zip	**City, State, Zip**	**City, State, Zip**
92617	Mountain View, CA	Mountain View, California
Telephone No. & Contact Name	**Telephone No. & Contact Name**	**Telephone No.:**
	(650	Not Applicable

Owner's/Consultant's Well No. | Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel

Consultant (Company)	Drilling Company
Address	**Address**
Boulevard, Suite 300	
City, State, Zip	**City, State, Zip**
	Land, CA 95776
Telephone No.	**Telephone No.** / **C-57 License No.**
	976999
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: | Caseworker Name:
Oversight Agency: U.S. EPA Region IX | Caseworker Telephone No.:

Signature of Responsible Professional | Date | Print Name | (No substitution of signature will be accepted)

Civil Engineer Registration No. OR Geologist Registration No.

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural	☒ GW Level	☐ Air Sparge	☐ Permanent	☐ Closed Loop	☐ Groundwater Cleanup Reinjection		
☐ Domestic	☒ GW Quality	☐ GW Extraction	☐ Temporary	☐ Open Loop	☐ Stormwater		
☐ Industrial	☐ Inclinometer	☐ Material Emplacement			☐ Water Supply Recharge		
☐ Municipal	☐ Vapor	☐ Vapor Extraction			☐ Other		
	☐ Other	☐ Other					

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well from which is indicated on this application.

Signature	Date	Print Name
Signature of Property Owner/Agent	Date	Print Name of Property Owner/Agent
Signature of Well Owner/Agent	Date	Print Name of Well Owner/Agent
Signature of Well Driller/Agent	Date	Print Name of Driller/Agent
Signature of Consultant/Agent	Date 5-14-19	Print Name of Consultant/Agent TUAN NGUYEN

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

DISTRICT WELL PERMIT NO.: C2019053O004

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan must be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District (telephone 408-265-2607, ext. 2660) must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

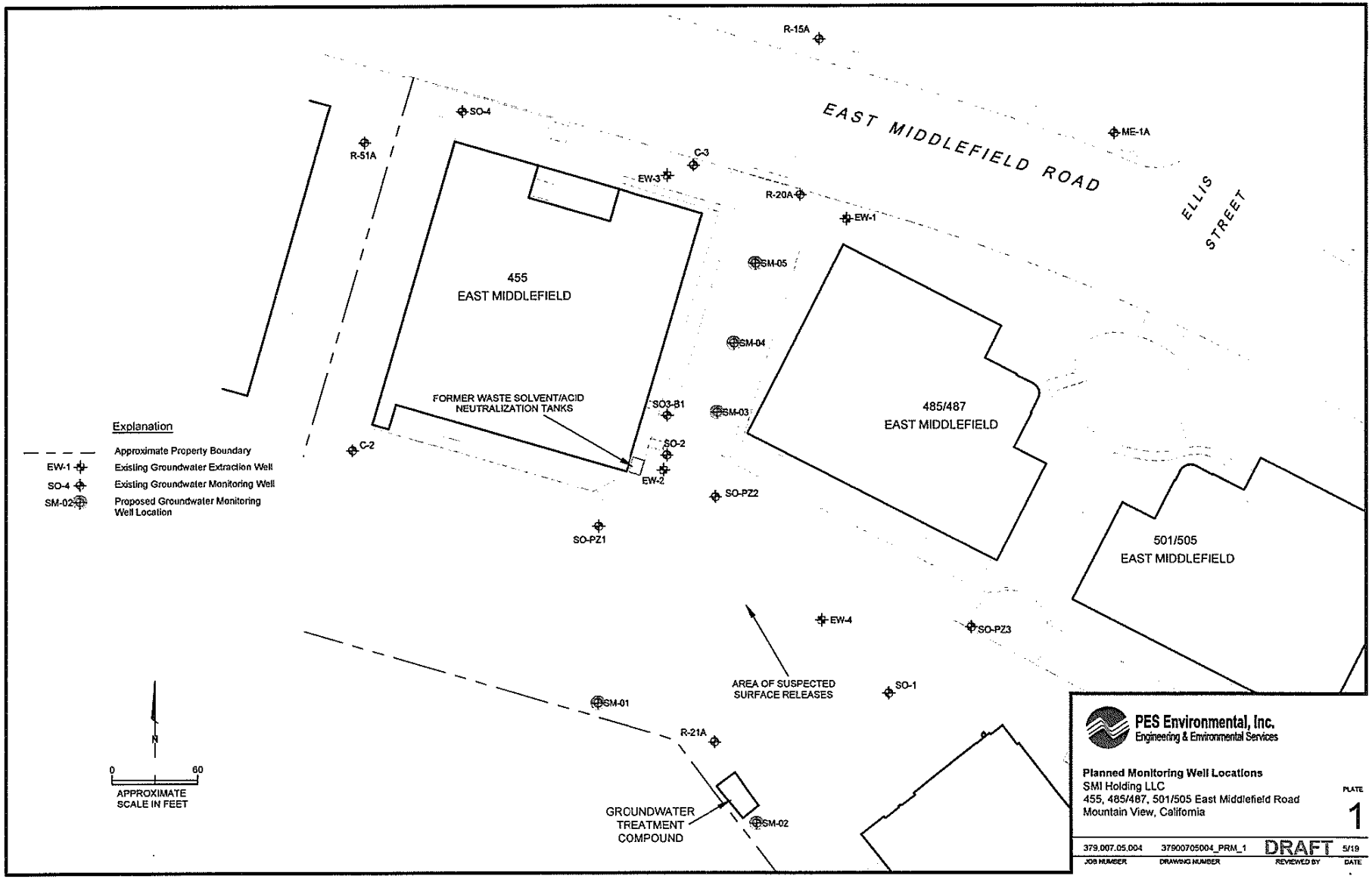
P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 5/30/2019

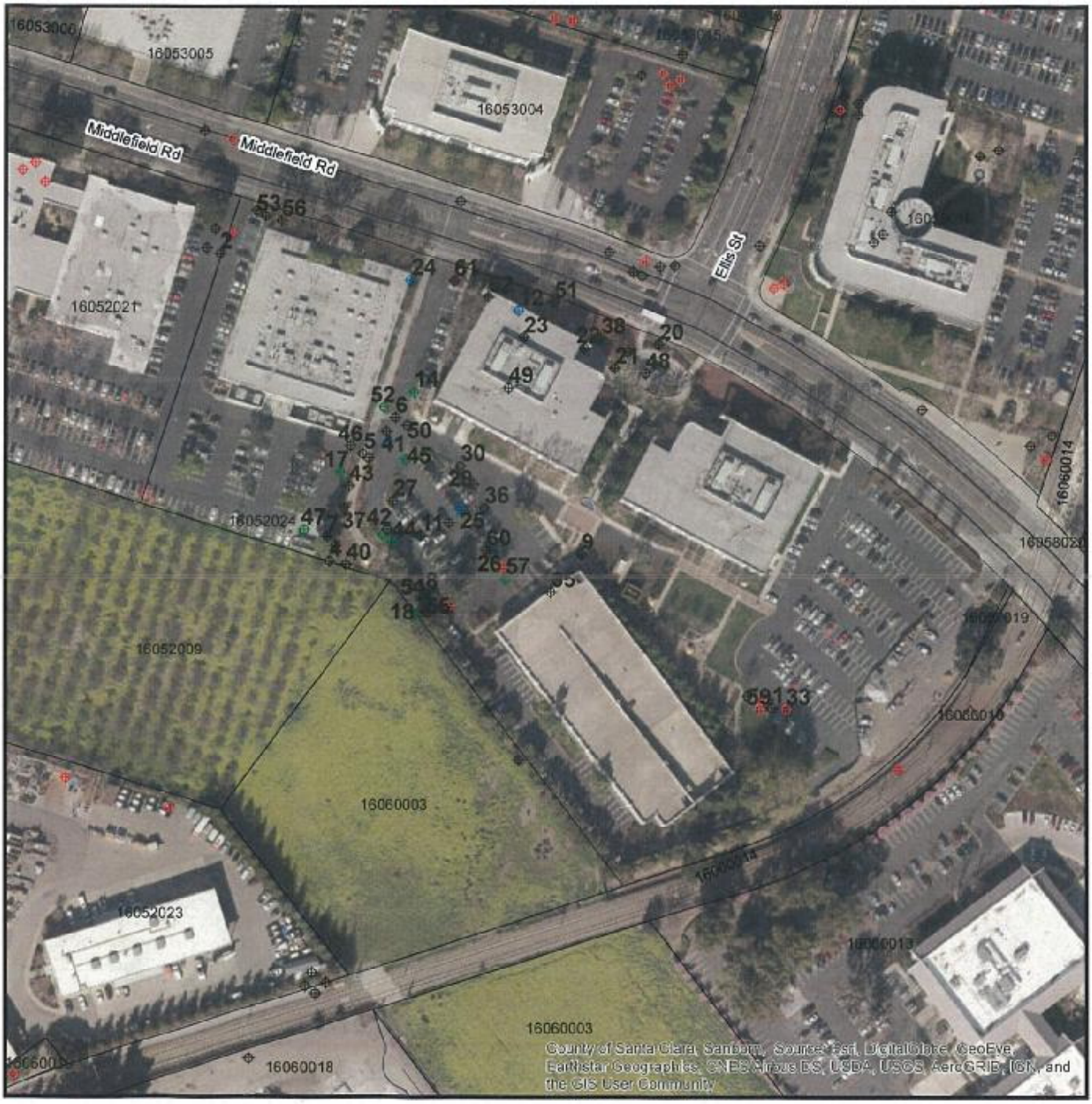
Please allow 10 working days to process this application.


R-15A
EAST MIDDLEFIELD ROAD
ELLIS STREET
ME-1A
SO-4
R-51A
C-3
EW-3
R-20A
EW-1
SM-05
455
EAST MIDDLEFIELD
SM-04
FORMER WASTE SOLVENT/ACID NEUTRALIZATION TANKS
SO3-B1
SM-03
485/487
EAST MIDDLEFIELD
C-2
SO-2
EW-2
SO-PZ2
SO-PZ1
501/505
EAST MIDDLEFIELD
EW-4
SO-PZ3
AREA OF SUSPECTED SURFACE RELEASES
SO-1
SM-01
R-21A
GROUNDWATER TREATMENT COMPOUND
SM-02
Explanation
Approximate Property Boundary
EW-1 Existing Groundwater Extraction Well
SO-4 Existing Groundwater Monitoring Well
SM-02 Proposed Groundwater Monitoring Well Location
N
0
60
APPROXIMATE SCALE IN FEET
PES Environmental, Inc.
Engineering & Environmental Services
Planned Monitoring Well Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California
PLATE
1
379.007.05.004
JOB NUMBER
37900705004_PRM_1
DRAWING NUMBER
DRAFT
REVIEWED BY
5/19
DATE

EMBP 455, 485/487 LLC

APN 160-52-024

MOUNTAIN VIEW, CA



Approximate Scale

0 500 1,000 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/30/2019

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	R22B-1	86W1400	06S02W23L012	A
2	R50B-2	87W0305	06S02W23E126	A
3	R53B(3)	87W0308	06S02W23L016	A
4	R54B-3	87W0309	06S02W23L018	A
5	MW-2	89W1535	06S02W23L025	A
6	SB03-B1	92W0313	06S02W23L026	A
7	B-22	93W0561	06S02W23M042	A
8	VP-PZ-1	93W0596	06S02W23L030	A
9	SO-PZ-3	93W0558	06S02W23L031	A
10	SO-PZ-2	93W0557	06S02W23M044	A
11	B-17	92W0318	06S02W23L033	A
12	EW-1	95W00385	06S02W23L036	A01
13	VE-5	95W00402	06S02W23L040	A02
14	VE-3	95W00395	06S02W23E266	A02
15	AS-3	95W00399	06S02W23E262	A
16	AS-5	95W00407	06S02W23L038	A
17	VE-4	95W00396	06S02W23E264	A02
18	VE-8	95W00404	06S02W23L039	A02
19	VP-2	95W00387	06S02W23L048	A
20	VP-3	95W00388	06S02W23L052	A
21	VP-5	95W00390	06S02W23L050	A
22	VP-6	95W00391	06S02W23L051	A
23	VP-7	95W00408	06S02W23L045	A
24	EW-3	97W00259	06S02W23L054	A01
25	EW 4	97W00260	06S02W23L056	A01
26		98D00048	UNREGISTERED	D
27	AS-2	95W00406	06S02W23L037	A
28	EW 2	97W00258	06S02W23L053	A01
29	PZ-3	00W01140	06S02W23L059	A
30	PZ-4	00W01141	06S02W23L060	A
31	R49B2	97D01401	06S02W23E125	D
32		92D0116	UNREGISTERED	D
33	R48B(3)	97D01402	06S02W23L015	D
34	PZ-1	00W01138	06S02W23E332	A
35	MW-2	89W1536	06S02W23L024	A
36	B-24	93W0555	06S02W23L032	A
37	AS-1	95W00398	06S02W23E265	A
38	VP-1	95W00386	06S02W23L047	A
39	R22B-2	86W1783	06S02W23L011	A
40	R52B2	87W0307	06S02W23L014	A
41	S0-2(R)	90W2399	06S02W23M033	A
42	B-23	93W0554	06S02W23L029	A
43	SO-PZ-1	93W0559	06S02W23M043	A
44	VE-2	95W00401	06S02W23L042	A02
45	VE-6	95W00403	06S02W23L041	A02
46	AS-4	95W00400	06S02W23E263	A

47	VE-1	95W00394	06S02W23E267	A02
48	VP-4	95W00389	06S02W23L049	A
49	VP-8	95W00392	06S02W23L044	A
50	B-15	92W0316	06S02W23L028	A
51	VP-10	95W00409	06S02W23L046	A
52	VE 7	95W00397	06S02W23L057	A02
53	PZ-2	00W01139	06S02W23E333	A
54	R21A	85W1185	06S02W23L002	A
55	RP22B	85W1710	06S02W23L006	A
56	SO-4	95W00384	06S02W23E261	A
57	VE 9	95W00405	06S02W23L058	A02
58	R-47A	01D00421	06S02W23L010	D
59	R47B-2	97D01253	06S02W23L017	D
60	B-18	92W0319	06S02W23L027	A
61	VP-9	95W00393	06S02W23L043	A
62	R-20A	85W0626	06S02W23L001	A

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

TO BE COMPLETED BY DISTRICT

District Permit No.: W2019053000S	Date Issued: 5/30/19	Well Registration No.:
Geologic Setting:	Expiration Date: 5/30/20	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: Buildings are vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 & 485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song, Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-05	Assessor's Parcel No. of **Well Site:** Book 160 Page 52 Parcel 024	

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling	
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776	
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198	C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency: U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional — Date: 5/17/19 — Print Name: Gary Thomas (No substitution of signature will be accepted)

Civil Engineer Registration No. — OR — Geologist Registration No.: No. 8278

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well from which is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent:
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date: 5/17/19	Print Name of Consultant/Agent:

RECEIVED
MAY 20 2019
W.D. WELLS

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 2

TO BE COMPLETED BY DISTRICT		
District Permit No.:	Date Issued:	Well Registration No.:
Geologic Setting:	Expiration Date:	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER		
Well Owner: SMI Holding, LLC	Property Owner: EMBP 455 LLC	Name of Business at Well Site: 455-Digicert,Inc.; 485/487-vacant
Well Owner's Mailing Address: 3850 Quadrangle Boulevard, MC-222-SRE City, State, Zip Orlando, FL 32817	Property Owner's Mailing Address: 350 Ellis Street City, State, Zip Mountain View, CA 94043	**Address of Well Site:** 455 &.485/487 East Middlefield Road City, State, Zip Mountain View, California
Telephone No. & Contact Name: 407-810-3204	Telephone No. & Contact Name: 650-527-8000 (c/o Margaret Song,Esq.)	Telephone No.: Not Applicable
Owner's/Consultant's Well No.: SM-05	Assessor's Parcel No. of Well Site: Book 160 Page 52 Parcel 024	

Consultant (Company): PES Environmental, Inc.	Drilling Company: PeneCore Drilling
Address: 7665 Redwood Boulevard, Suite 200 City, State, Zip Novato, CA 94945	Address: 220 N. East Street City, State, Zip Woodland, CA 95776
Telephone No.: 415-899-1600	Telephone No.: 530-681-3198 / C-57 License No.: 906899
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Part of MEW Site	Caseworker Name: Alana Lee
Oversight Agency. U.S. EPA (Region IX)	Caseworker Telephone No.: 510-622-2313

Signature of Responsible Professional _____ Date _____ Gary Thomas Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No. _____ OR No. 8278 Geologist Registration No.

Estimated Depth of Completed Well: ☒ Less than 50 feet ☐ 50 to 300 feet ☐ Over 300 feet ☐ Other:

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE	☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

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I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date: May 28, 2019	Print Name of Property Owner/Agent: Eunice Kim
Signature of Well Owner/Agent:: O'Connor Susan	Date: May 14, 2019	Print Name of Well Owner/Agent: Susan R. O'Connor
Signature of Well Driller/Agent:	Date:	Print Name of Driller/Agent:
Signature of Consultant/Agent:	Date:	Print Name of Consultant/Agent:

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Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)

DISTRICT WELL PERMIT NO.: C2019053005

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

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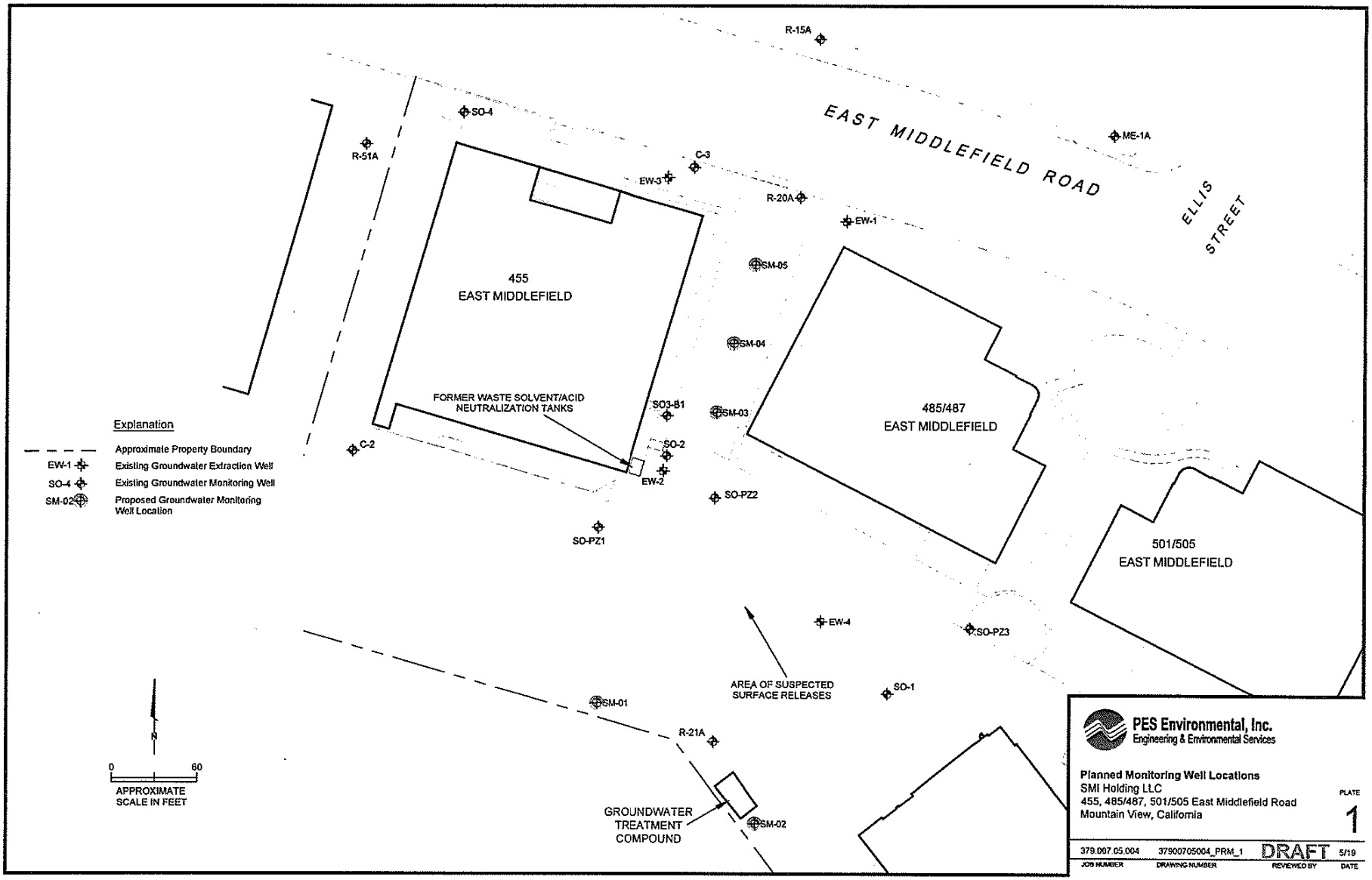
Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 5/30/19

Please allow 10 working days to process this application.


R-15A
EAST MIDDLEFIELD ROAD
ELLIS STREET
SO-4
R-51A
C-3
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FORMER WASTE SOLVENT/ACID NEUTRALIZATION TANKS
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AREA OF SUSPECTED SURFACE RELEASES
SO-1
SM-01
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GROUNDWATER TREATMENT COMPOUND
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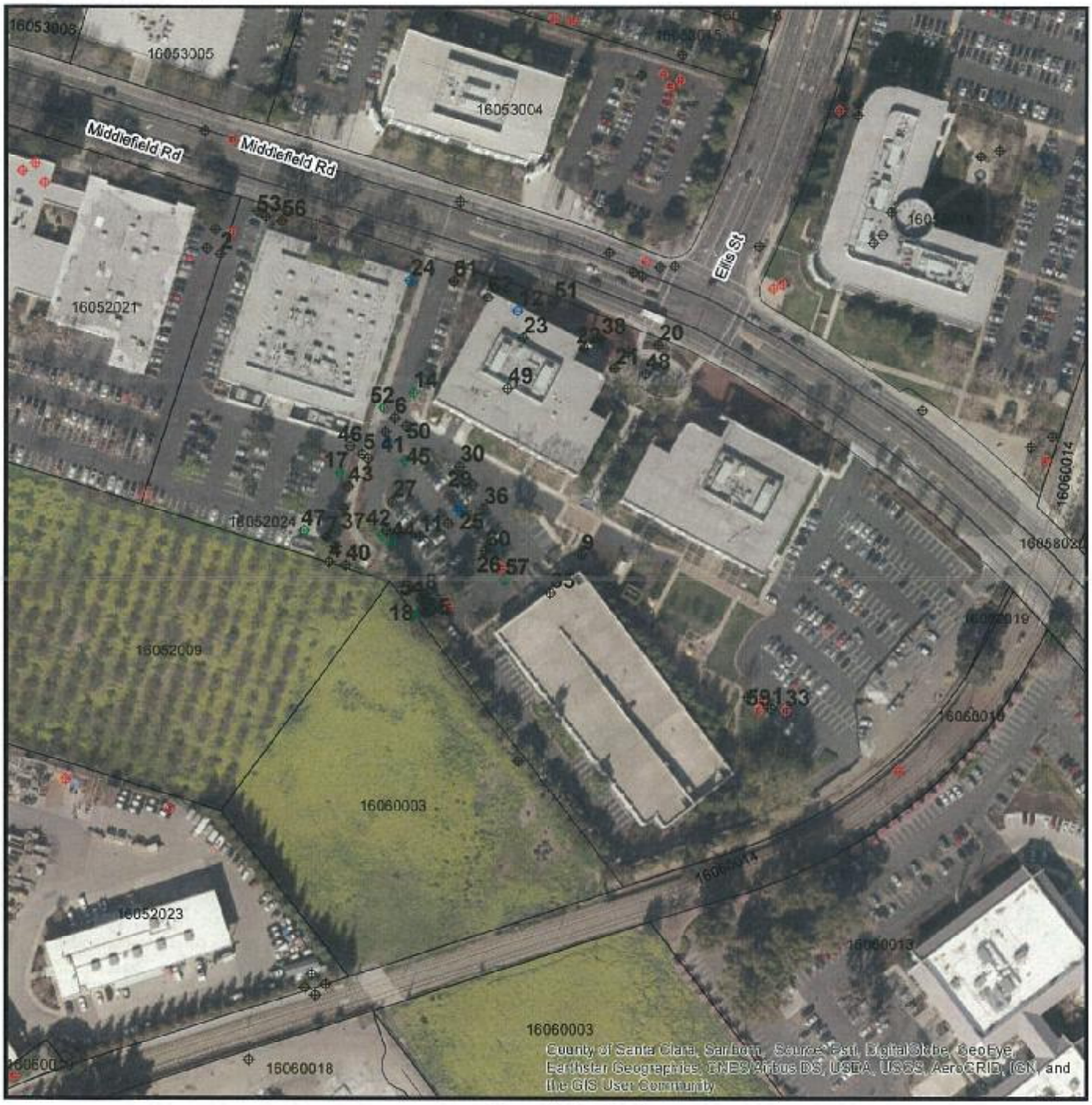
SO-4 Existing Groundwater Monitoring Well
SM-02 Proposed Groundwater Monitoring Well Location
N
0
60
APPROXIMATE SCALE IN FEET
PES Environmental, Inc.
Engineering & Environmental Services
Planned Monitoring Well Locations
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California
PLATE
1
379.007.05.004
JOB NUMBER
37900705004_PRM_1
DRAWING NUMBER
DRAFT
REVIEWED BY
5/19
DATE

EMBP 455, 485/487 LLC

APN 160-52-024

MOUNTAIN VIEW, CA



Approximate Scale

0 500 1,000 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

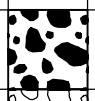
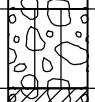
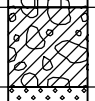
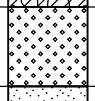
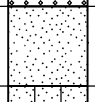
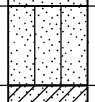
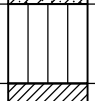
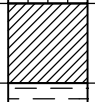
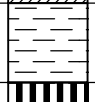
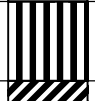
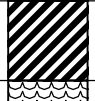
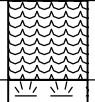
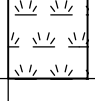
5/30/2019

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	R22B-1	86W1400	06S02W23L012	A
2	R50B-2	87W0305	06S02W23E126	A
3	R53B(3)	87W0308	06S02W23L016	A
4	R54B-3	87W0309	06S02W23L018	A
5	MW-2	89W1535	06S02W23L025	A
6	SB03-B1	92W0313	06S02W23L026	A
7	B-22	93W0561	06S02W23M042	A
8	VP-PZ-1	93W0596	06S02W23L030	A
9	SO-PZ-3	93W0558	06S02W23L031	A
10	SO-PZ-2	93W0557	06S02W23M044	A
11	B-17	92W0318	06S02W23L033	A
12	EW-1	95W00385	06S02W23L036	A01
13	VE-5	95W00402	06S02W23L040	A02
14	VE-3	95W00395	06S02W23E266	A02
15	AS-3	95W00399	06S02W23E262	A
16	AS-5	95W00407	06S02W23L038	A
17	VE-4	95W00396	06S02W23E264	A02
18	VE-8	95W00404	06S02W23L039	A02
19	VP-2	95W00387	06S02W23L048	A
20	VP-3	95W00388	06S02W23L052	A
21	VP-5	95W00390	06S02W23L050	A
22	VP-6	95W00391	06S02W23L051	A
23	VP-7	95W00408	06S02W23L045	A
24	EW-3	97W00259	06S02W23L054	A01
25	EW 4	97W00260	06S02W23L056	A01
26		98D00048	UNREGISTERED	D
27	AS-2	95W00406	06S02W23L037	A
28	EW 2	97W00258	06S02W23L053	A01
29	PZ-3	00W01140	06S02W23L059	A
30	PZ-4	00W01141	06S02W23L060	A
31	R49B2	97D01401	06S02W23E125	D
32		92D0116	UNREGISTERED	D
33	R48B(3)	97D01402	06S02W23L015	D
34	PZ-1	00W01138	06S02W23E332	A
35	MW-2	89W1536	06S02W23L024	A
36	B-24	93W0555	06S02W23L032	A
37	AS-1	95W00398	06S02W23E265	A
38	VP-1	95W00386	06S02W23L047	A
39	R22B-2	86W1783	06S02W23L011	A
40	R52B2	87W0307	06S02W23L014	A
41	S0-2(R)	90W2399	06S02W23M033	A
42	B-23	93W0554	06S02W23L029	A
43	SO-PZ-1	93W0559	06S02W23M043	A
44	VE-2	95W00401	06S02W23L042	A02
45	VE-6	95W00403	06S02W23L041	A02
46	AS-4	95W00400	06S02W23E263	A

47	VE-1	95W00394	06S02W23E267	A02
48	VP-4	95W00389	06S02W23L049	A
49	VP-8	95W00392	06S02W23L044	A
50	B-15	92W0316	06S02W23L028	A
51	VP-10	95W00409	06S02W23L046	A
52	VE 7	95W00397	06S02W23L057	A02
53	PZ-2	00W01139	06S02W23E333	A
54	R21A	85W1185	06S02W23L002	A
55	RP22B	85W1710	06S02W23L006	A
56	SO-4	95W00384	06S02W23E261	A
57	VE 9	95W00405	06S02W23L058	A02
58	R-47A	01D00421	06S02W23L010	D
59	R47B-2	97D01253	06S02W23L017	D
60	B-18	92W0319	06S02W23L027	A
61	VP-9	95W00393	06S02W23L043	A
62	R-20A	85W0626	06S02W23L001	A

APPENDIX B

MONITORING WELL AND SOIL VAPOR PROBE CONSTRUCTION LOGS

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW		WELL-GRADED GRAVELS WITH OR WITHOUT SAND
			GP		POORLY-GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GM		SILTY GRAVELS WITH OR WITHOUT SAND
			GC		CLAYEY GRAVELS WITH OR WITHOUT SAND
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW		WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP		POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OL		ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

ABBREVIATION KEY

PID (PPM) - Photo Ionization Detector readings in parts per million from field headspace sample screening.

BLOWS/6" - Blows required to drive sampler 6 inches as indicated on the logs using sample drive hammer weight of 140 pounds falling 30 inches.

2.5YR 6/2 - Soil Color according to Munsell Soil Color Charts (1994 Revised Edition)

feet MSL - feet above Mean Seal Level

feet BGS - feet below ground surface

SYMBOLS KEY

- No Soil Sample Recovered
- Partial Soil Sample Recovered
- Undisturbed Soil Sample Recovered
- Soil Sample Submitted for Laboratory Analysis
- Hydropunch Sample
- First Encountered Groundwater Level
- Piezometric Groundwater level

USCS CHART 1100.005.01.062 2611 ECR OFFSITE.GPJ PES_ENV.GDT 3/1/17

PES Environmental, Inc.
Engineering & Environmental Services

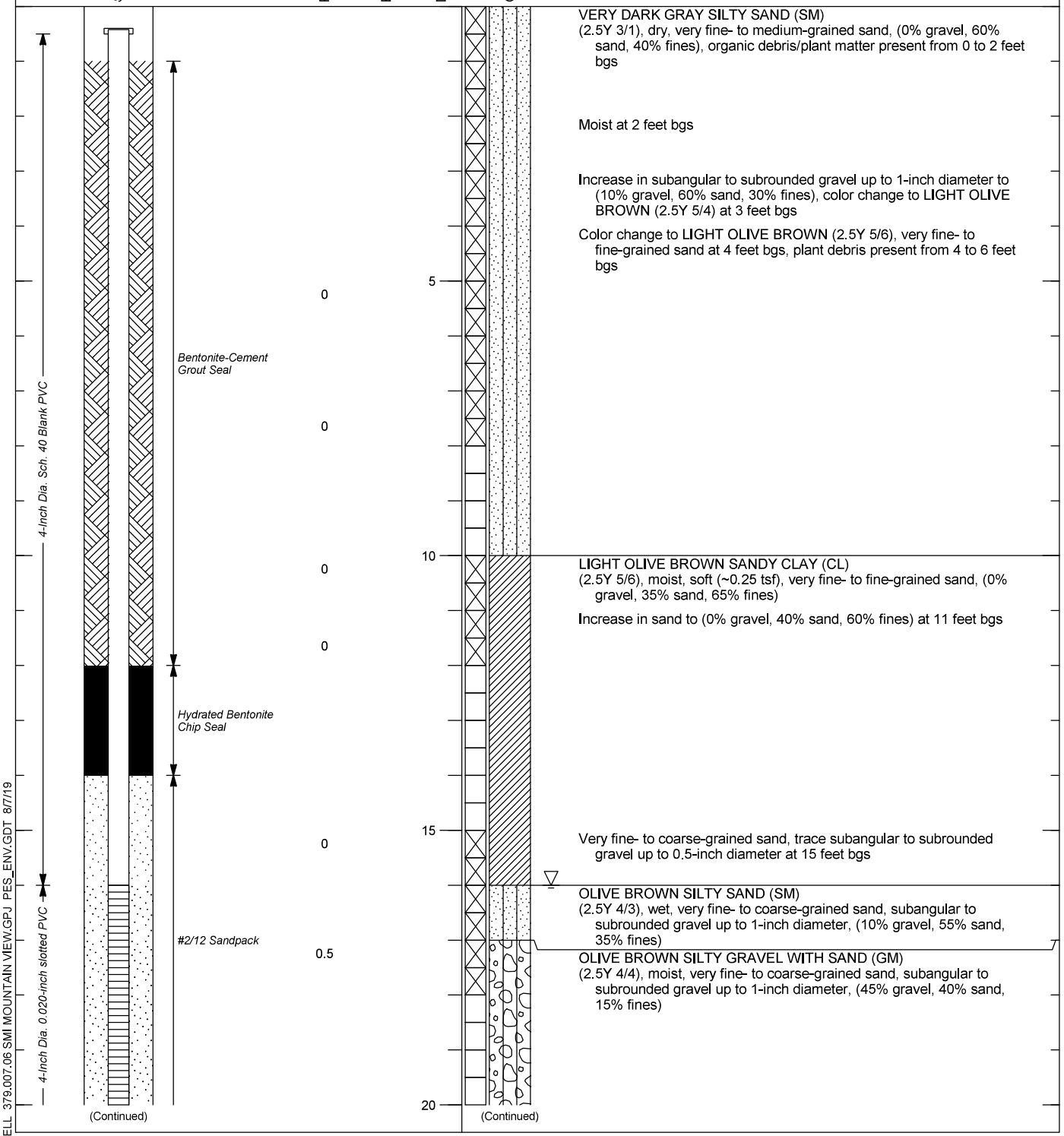
Unified Soil Classification System Chart
SMI Mountain View
Mountain View, California

PLATE
B-0

379.007.06.005	USCS Chart	GDT	10/8/2019
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-01



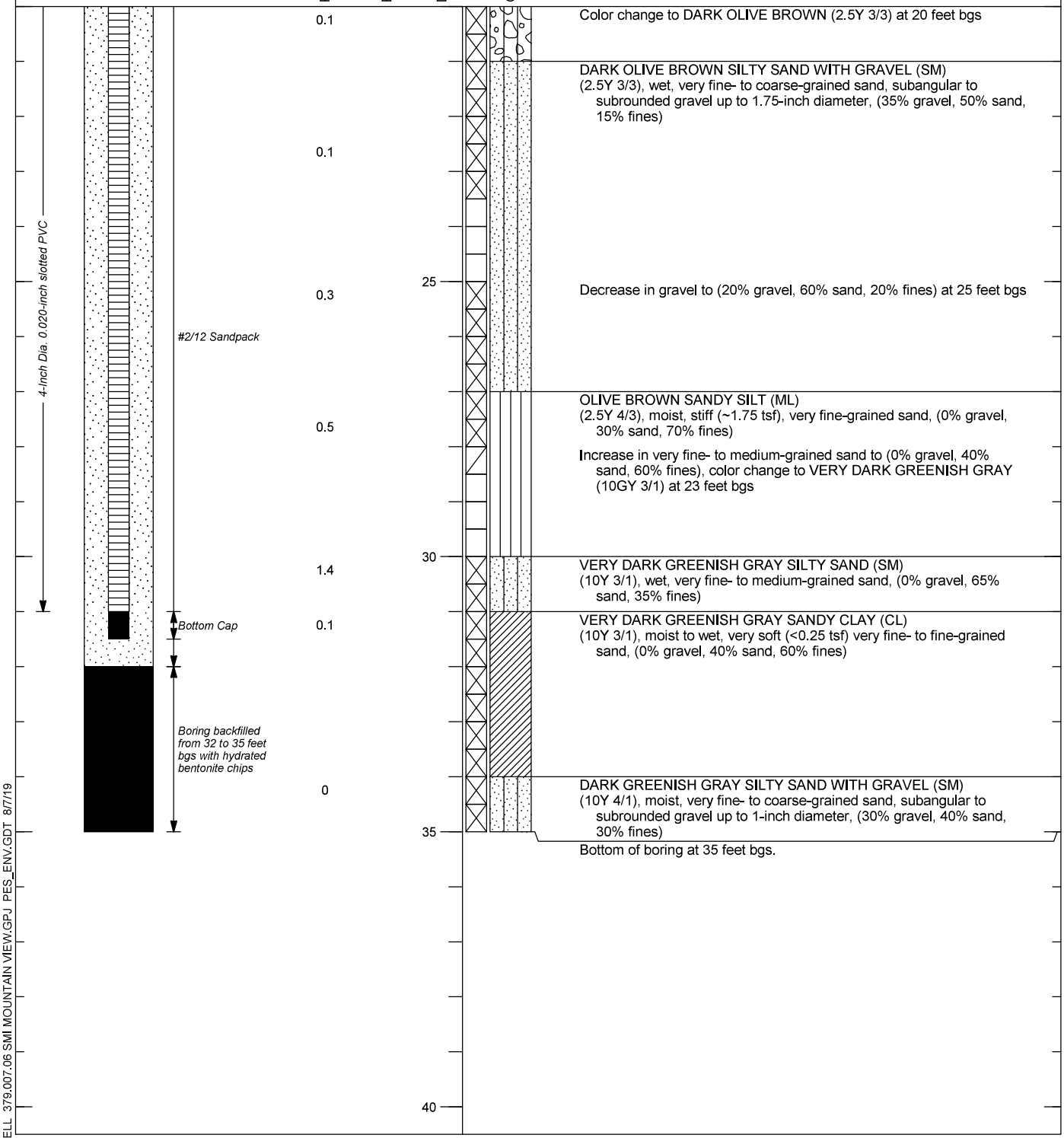
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/26/19
REVIEWED BY	GDT	DATE COMPLETED	6/26/19

PLATE
B-1

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-01



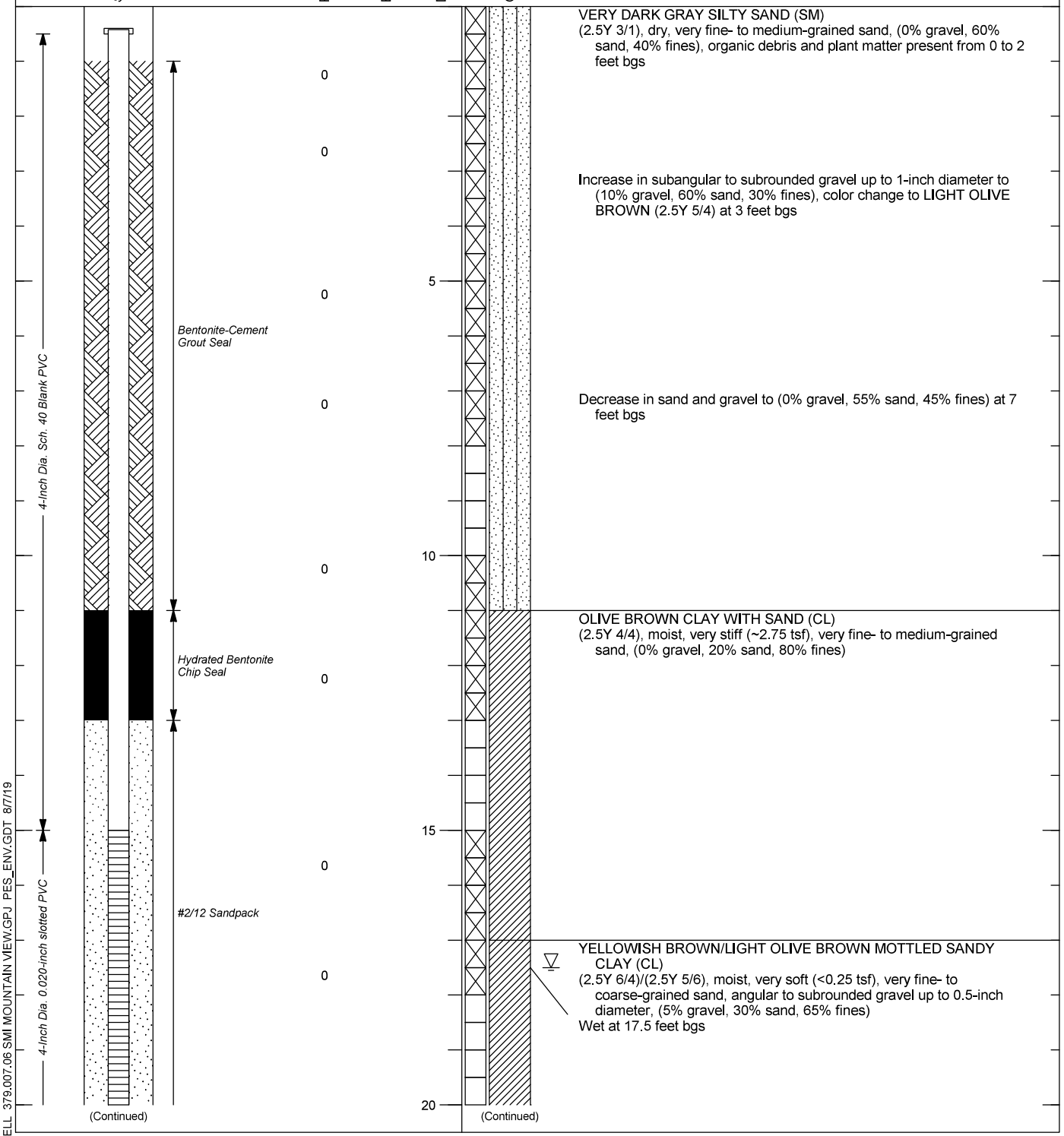
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/26/19
REVIEWED BY	GDT	DATE COMPLETED	6/26/19

PLATE **B-1**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-02



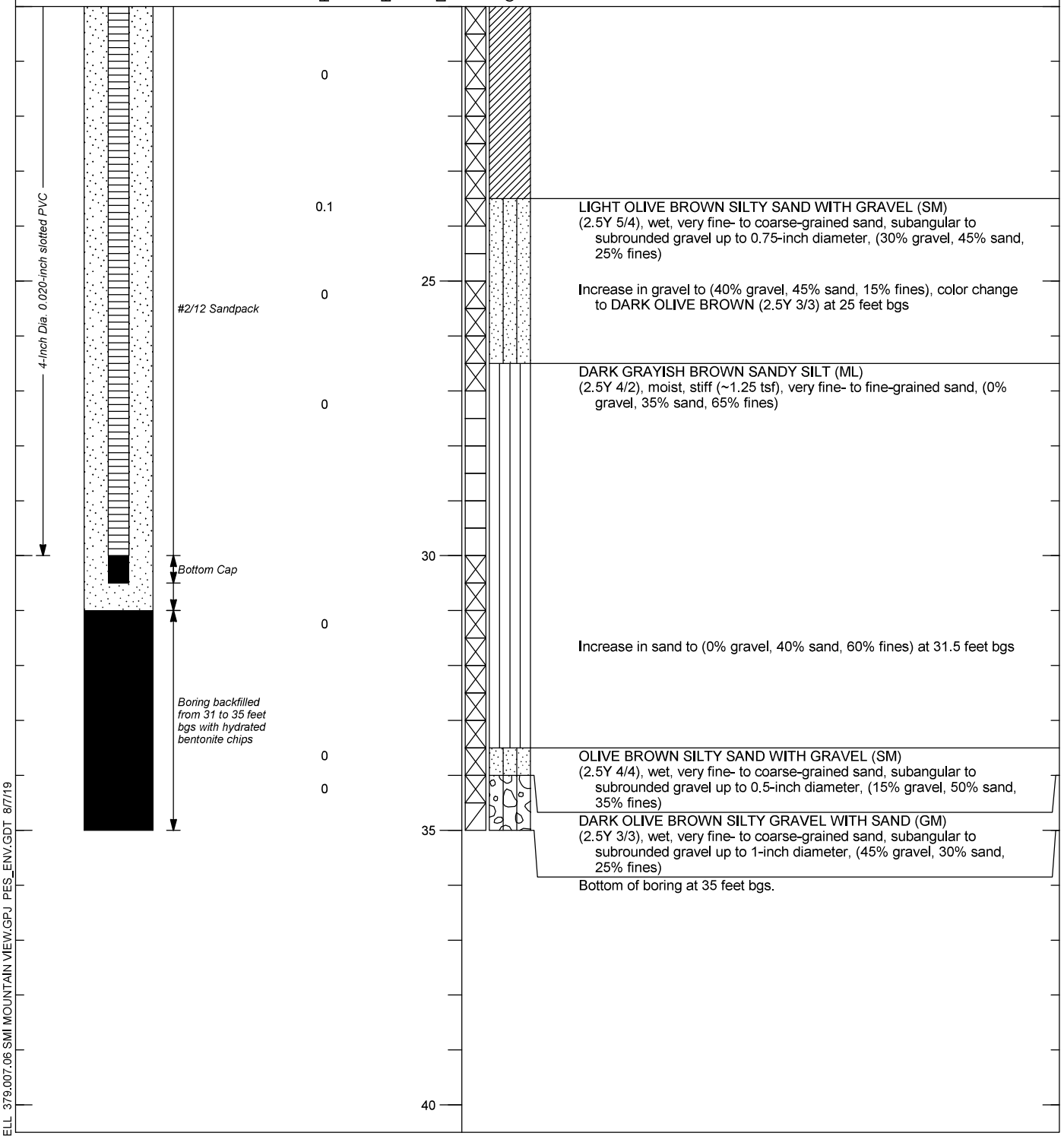
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/27/19
REVIEWED BY	GDT	DATE COMPLETED	6/27/19

PLATE **B-2**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-02



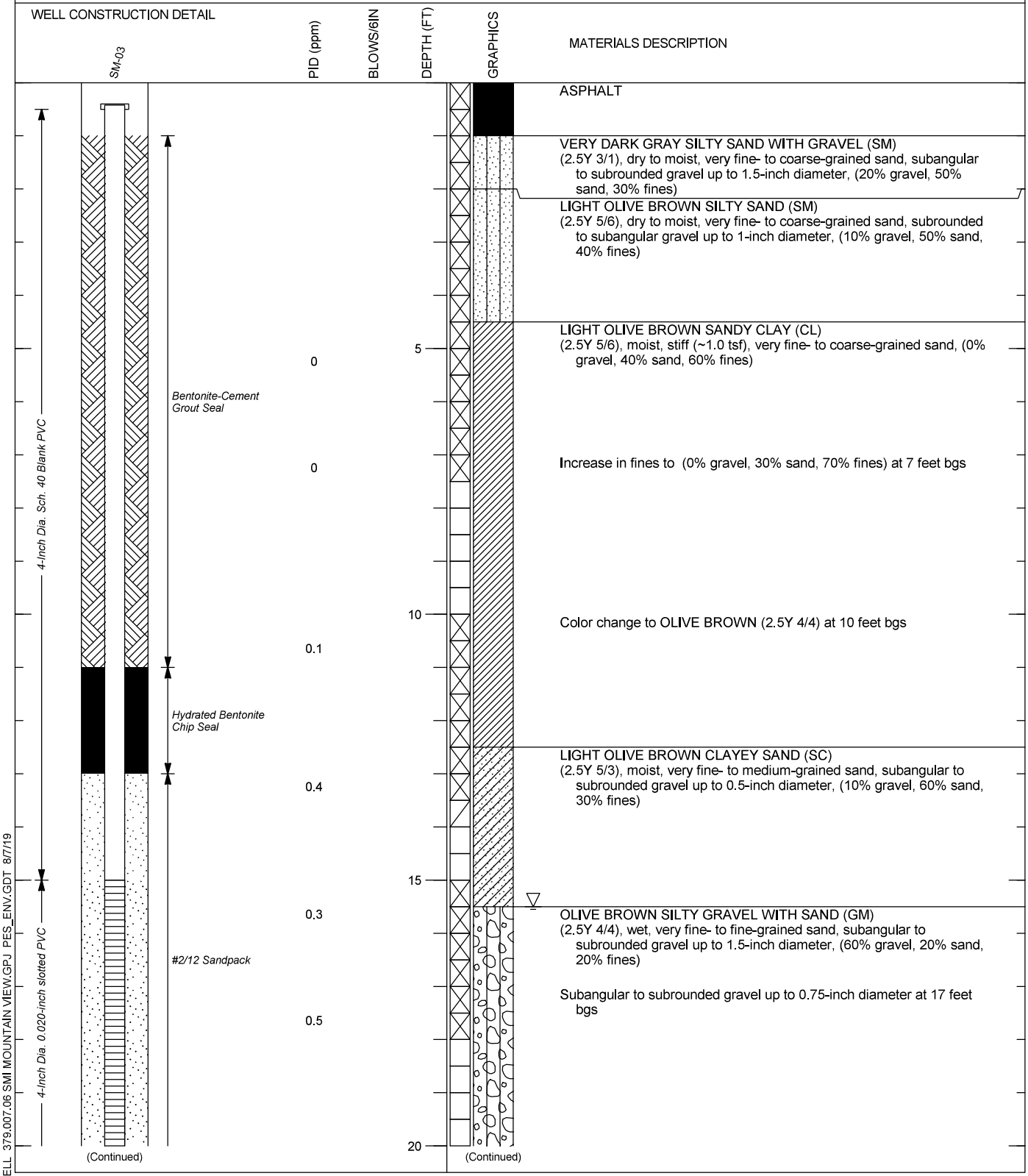
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/27/19
REVIEWED BY	GDT	DATE COMPLETED	6/27/19

PLATE **B-2**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-03



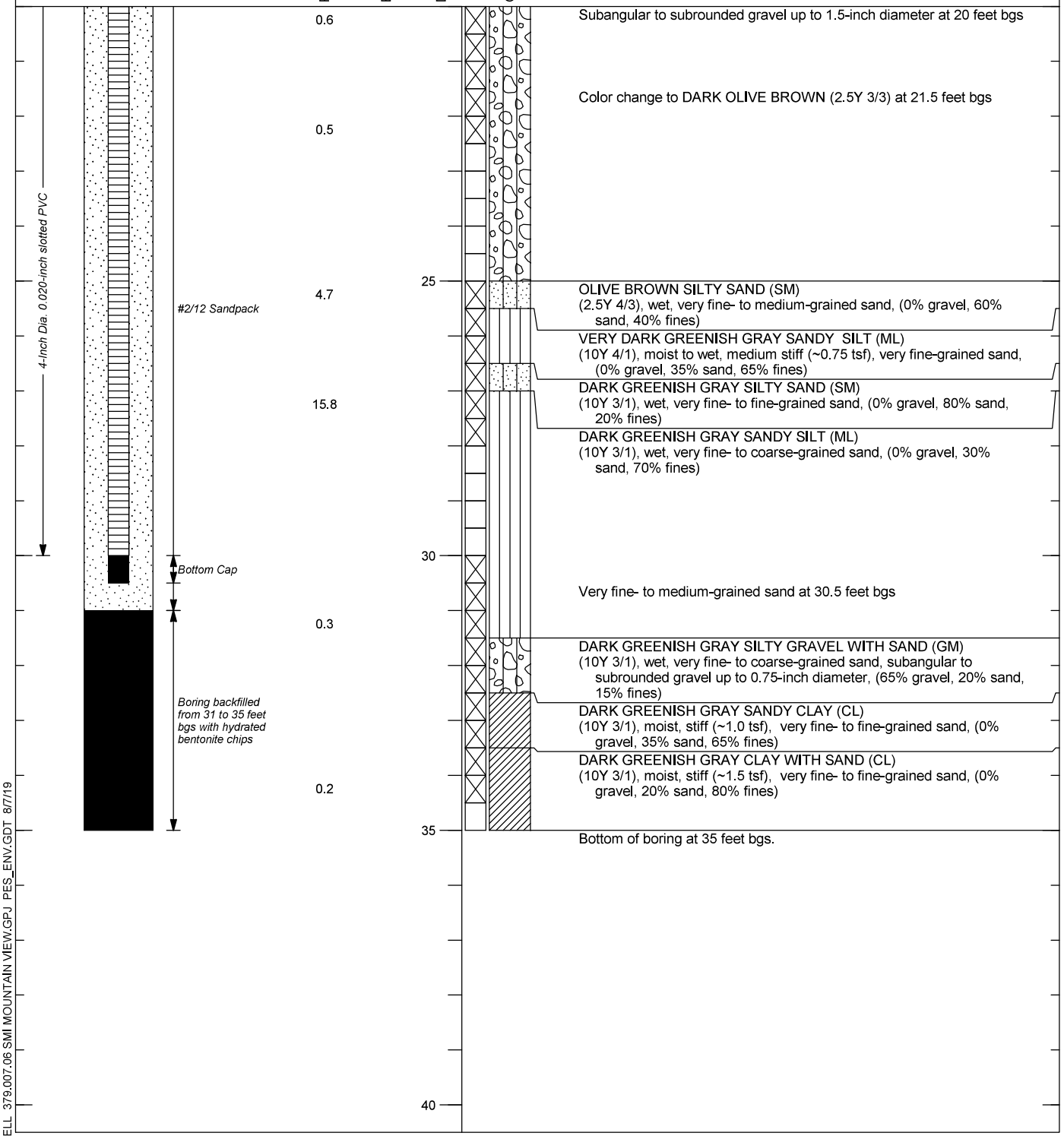
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/24/19
REVIEWED BY	GDT	DATE COMPLETED	6/24/19

PLATE **B-3**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-03



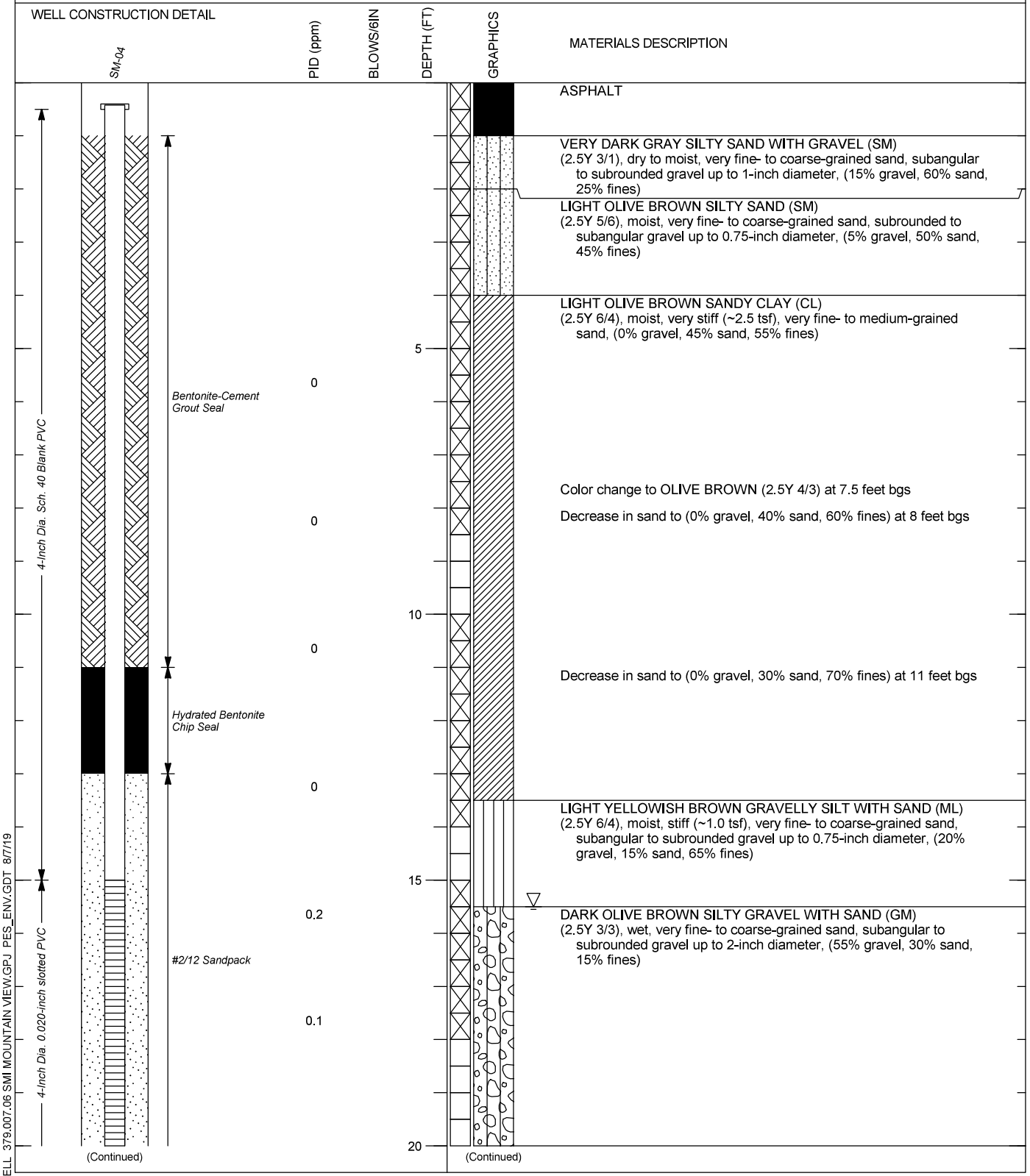
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/24/19
REVIEWED BY	GDT	DATE COMPLETED	6/24/19

PLATE **B-3**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-04



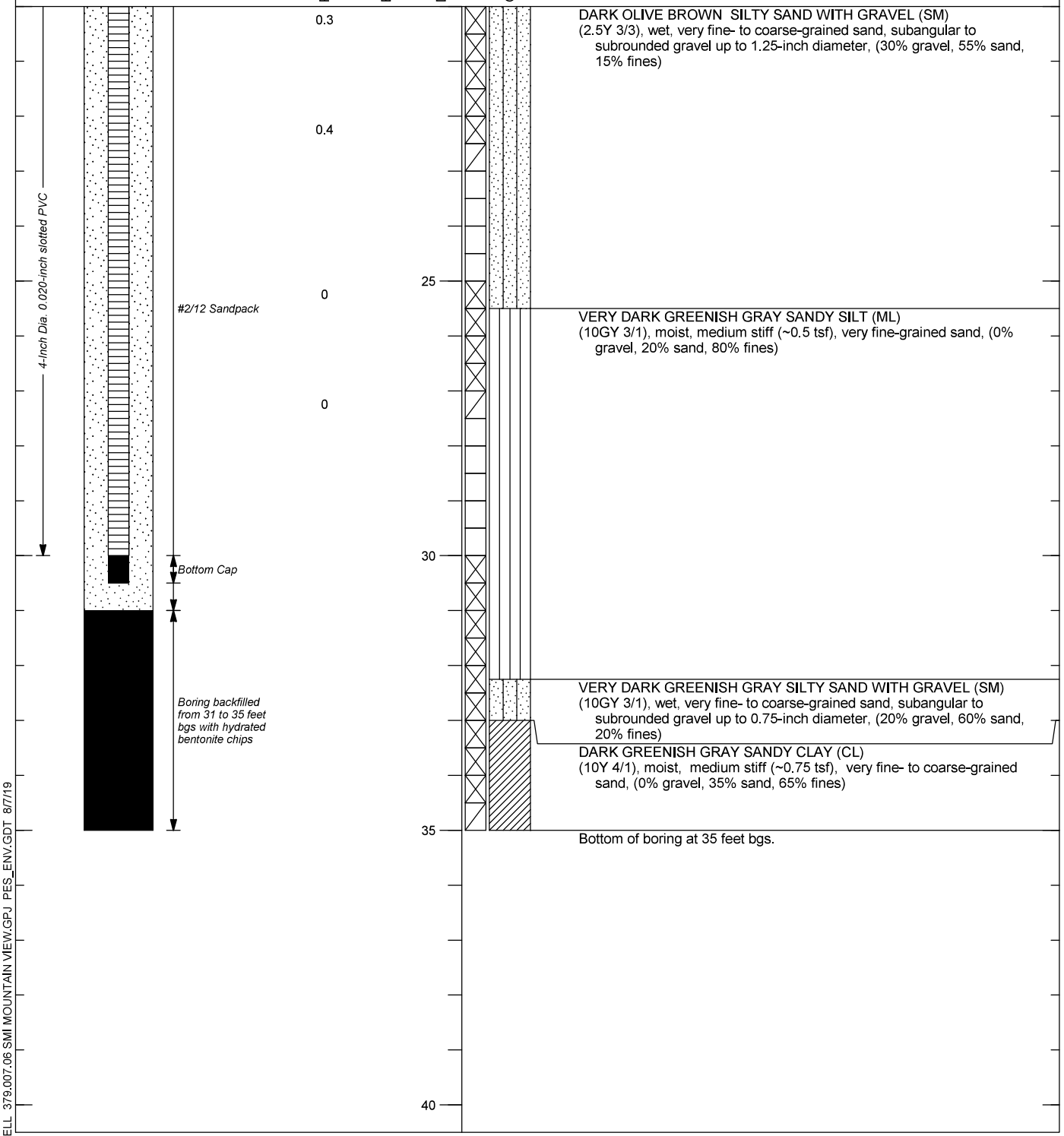
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/25/19
REVIEWED BY	GDT	DATE COMPLETED	6/25/19

PLATE **B-4**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-04



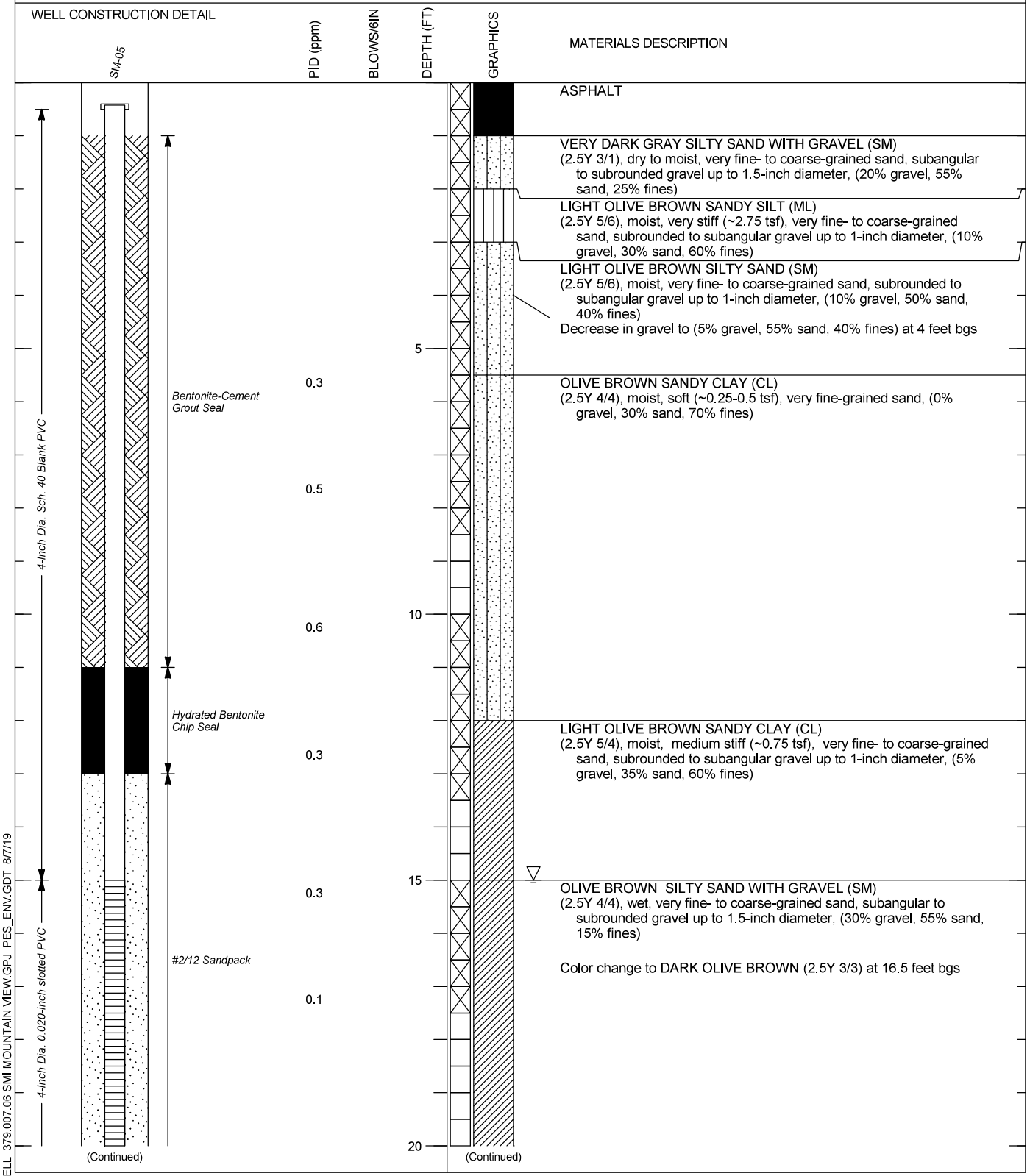
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/25/19
REVIEWED BY	GDT	DATE COMPLETED	6/25/19

PLATE **B-4**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-05



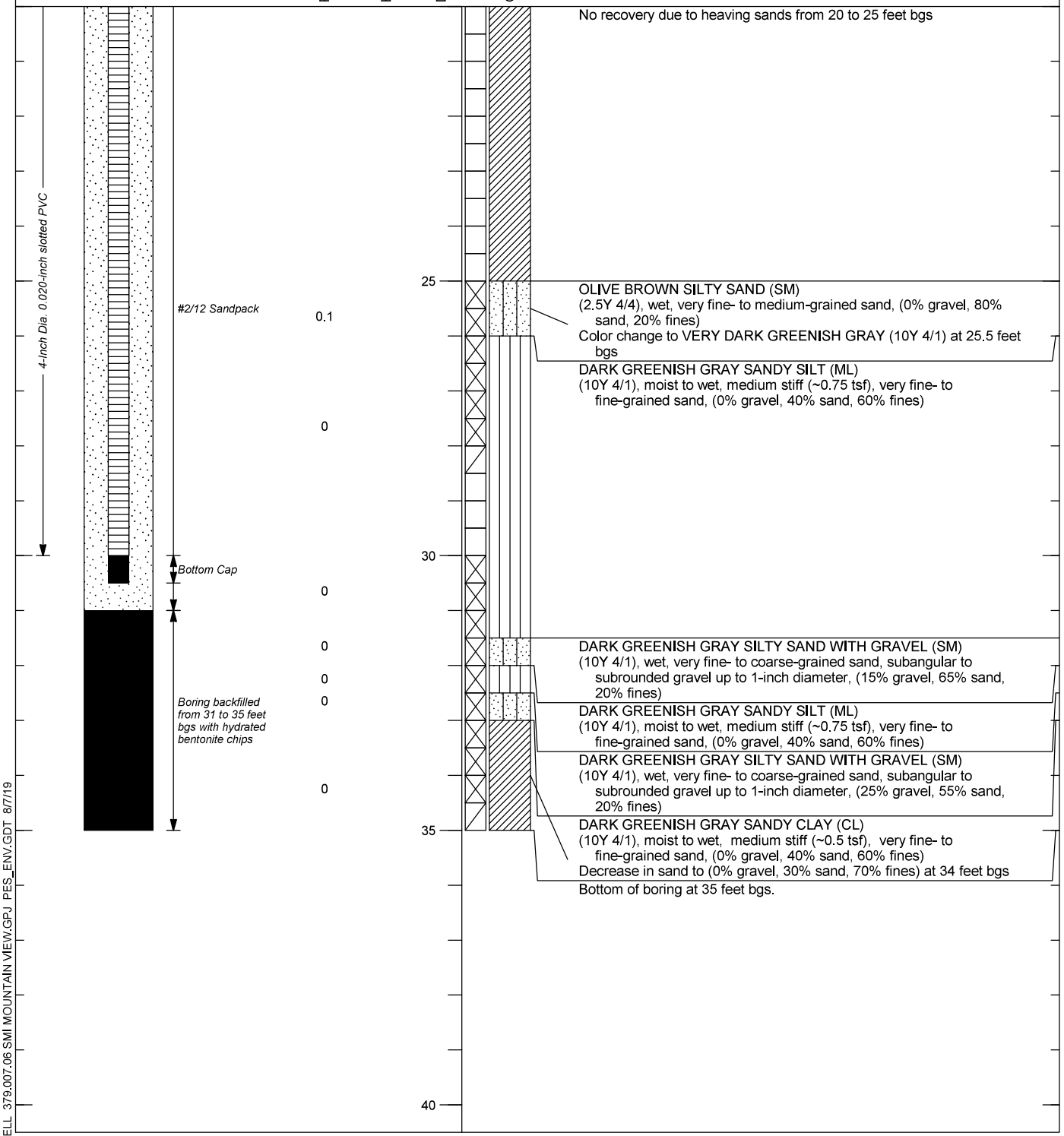
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/24/19
REVIEWED BY	GDT	DATE COMPLETED	6/24/19

PLATE **B-5**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SM-05



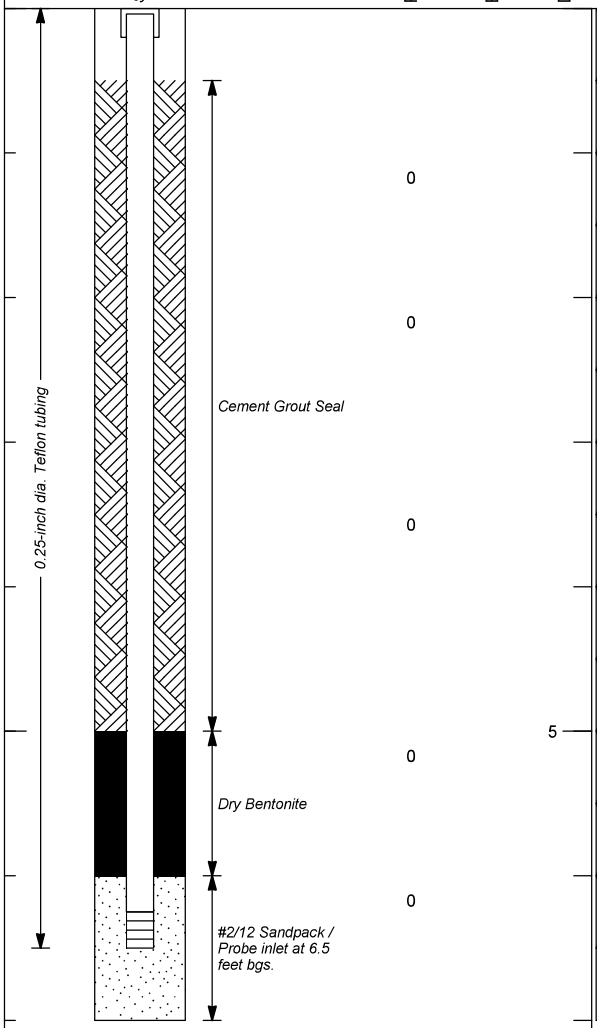
PROJECT	SMI Mountain View	DIAMETER OF HOLE	10 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	35 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/24/19
REVIEWED BY	GDT	DATE COMPLETED	6/24/19

PLATE **B-5**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF SOIL VAPOR PROBE SV-01



DEPTH (FT)	PID (ppm)	BLOWS/6IN	GRAPHICS	MATERIALS DESCRIPTION
				ASPHALT
	0			CONCRETE
	0			LIGHT OLIVE BROWN SANDY CLAY WITH GRAVEL (CL) (2.5Y 5/6), moist, stiff (~1.25 tsf), very fine- to medium-grained sand, subangular to subrounded gravel up to 0.75-inch diameter, (20% gravel, 25% sand, 55% fines)
	0			OLIVE BROWN SILTY SAND WITH GRAVEL (SM) (2.5Y 4/4), moist, very fine- to coarse-grained sand, subangular to subrounded gravel up to 0.75-inch diameter, (30% gravel, 50% sand, 20% fines)
5	0			OLIVE BROWN SANDY CLAY (CL) (2.5Y 4/3), moist, stiff (~1.0 tsf), very fine- to medium-grained sand, (0% gravel, 40% sand, 60% fines)
	0			Bottom of boring at 7 feet bgs.
10				

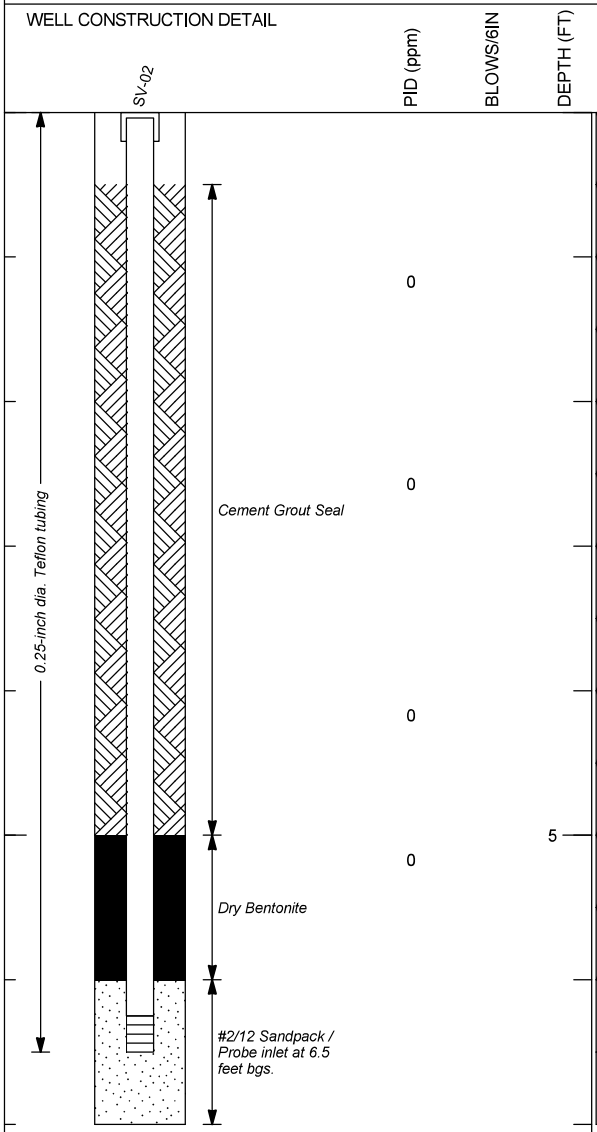
LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PROJECT	SMI Mountain View	DIAMETER OF HOLE	2.25 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	7 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/27/19
REVIEWED BY	GDT	DATE COMPLETED	6/27/19

PLATE
B-6

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF SOIL VAPOR PROBE SV-02



DEPTH (FT)	PID (ppm)	BLOWS/6IN	GRAPHICS	MATERIALS DESCRIPTION
				PLANT DEBRIS (WOOD CHIPS)
	0			DARK GRAYISH BROWN SILTY GRAVEL WITH SAND (GM) (2.5Y 4/2), dry, very fine- to coarse-grained sand, subangular to subrounded gravel up to 3-inch diameter, (50% gravel, 25% sand, 25% fines)
	0			
	0			LIGHT OLIVE BROWN SANDY CLAY (CL) (2.5Y 5/6), moist, stiff (~1.75 tsf), very fine- to fine-grained sand, (0% gravel, 40% sand, 60% fines)
5	0			
				Bottom of boring at 7 feet bgs.
10				

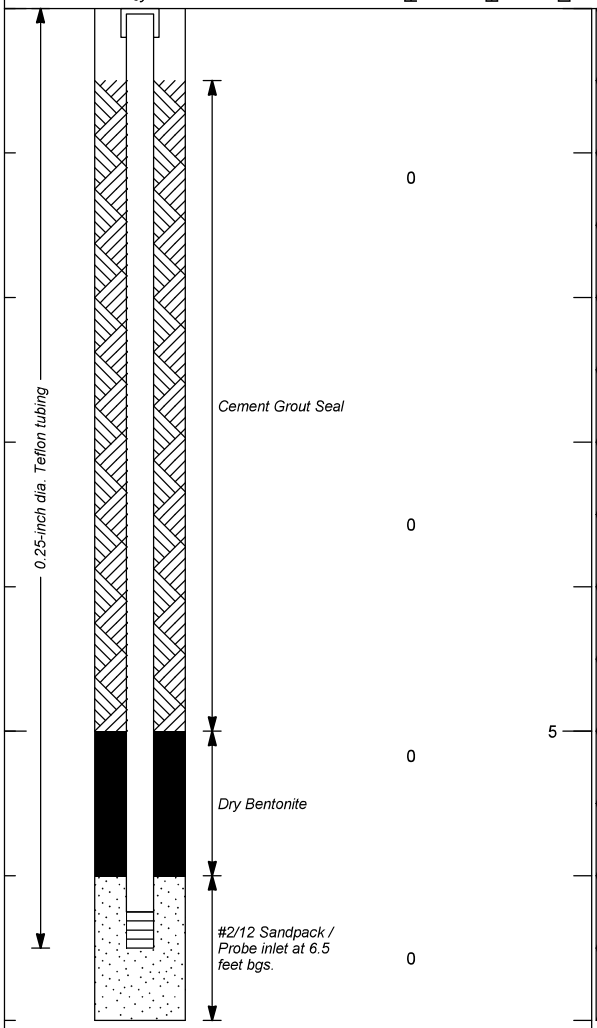
PROJECT	SMI Mountain View	DIAMETER OF HOLE	2.25 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	7 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/26/19
REVIEWED BY	GDT	DATE COMPLETED	6/26/19

PLATE **B-7**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF SOIL VAPOR PROBE SV-03



DEPTH (FT)	PID (ppm)	BLOWS/6IN	GRAPHICS	MATERIALS DESCRIPTION
				PLANT DEBRIS (WOOD CHIPS)
	0			VERY DARK GRAY SILTY GRAVEL WITH SAND (GM) (2.5Y 3/1), dry to moist, very fine- to coarse-grained sand, subangular to subrounded gravel up to 1-inch diameter, (40% gravel, 30% sand, 30% fines)
	0			LIGHT OLIVE BROWN SILTY SAND (SM) (2.5Y 5/4), moist, very fine- to coarse-grained sand, subangular to subrounded gravel up to 1-inch diameter, (10% gravel, 50% sand, 40% fines)
5	0			LIGHT OLIVE BROWN SANDY CLAY (CL) (2.5Y 5/6), moist, stiff (~1.0 tsf), very fine- to fine-grained sand, (0% gravel, 45% sand, 55% fines)
	0			Decrease in sand to (0% gravel, 35% sand, 65% fines) at 6 feet bgs
				Bottom of boring at 7 feet bgs.
10				

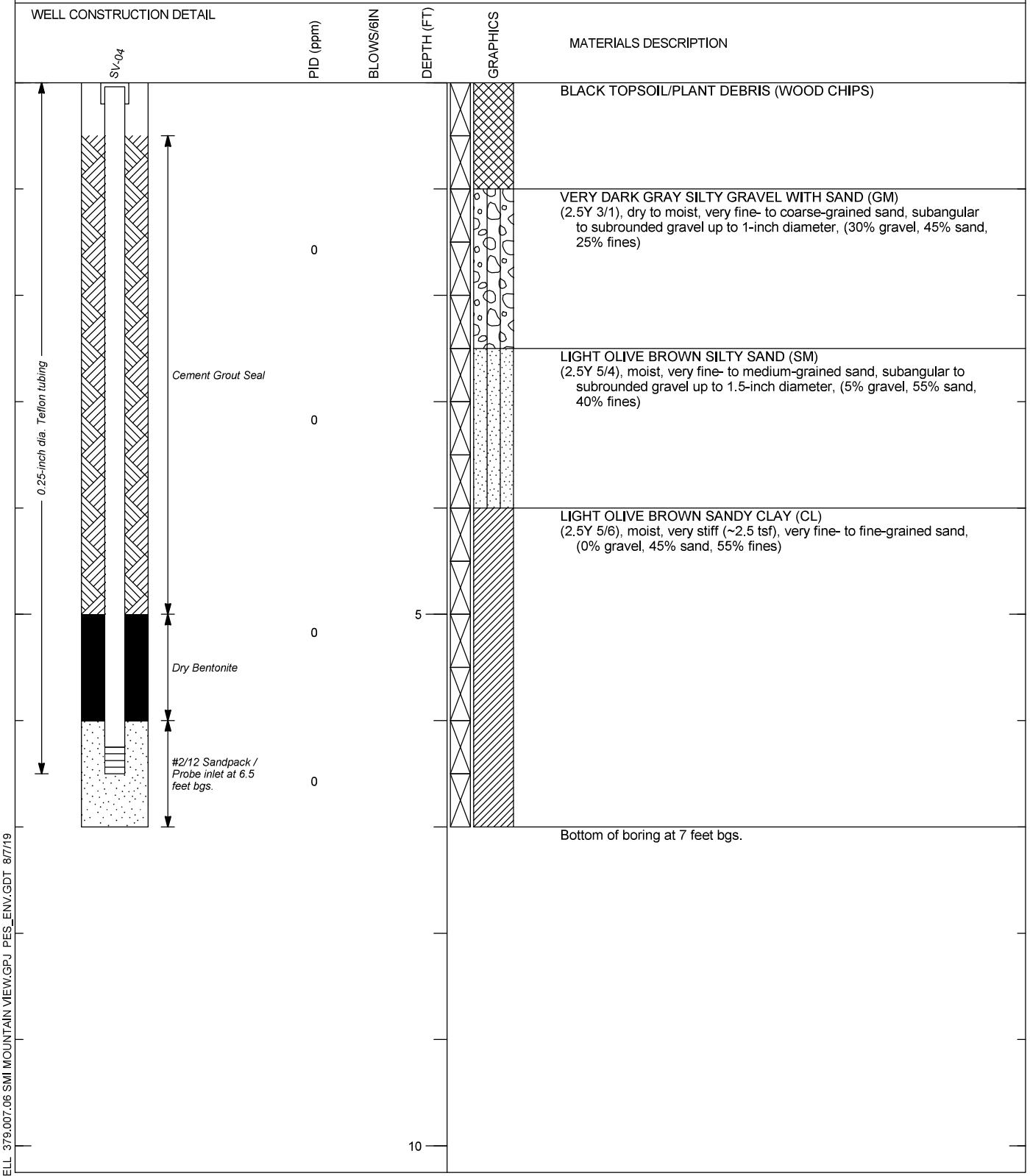
PROJECT	SMI Mountain View	DIAMETER OF HOLE	2.25 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	7 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	6/26/19
REVIEWED BY	GDT	DATE COMPLETED	6/26/19

PLATE **B-8**

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF SOIL VAPOR PROBE SV-04



PROJECT	SMI Mountain View	DIAMETER OF HOLE	2.25 inches
LOCATION	Mountain View, California	TOTAL DEPTH OF HOLE	7 feet
JOB NUMBER	379.007.06.005	DRILL RIG	GeoProbe 7822 DT
LOGGED BY	James Phillips	DATE STARTED	
REVIEWED BY	GDT	DATE COMPLETED	

PLATE
B-9

LOG OF BORING/WELL 379.007.06 SMI MOUNTAIN VIEW.GPJ PES_ENV.GDT 8/7/19

APPENDIX C

MONITORING WELL DEVELOPMENT LOGS

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 1 of 2	
Date/Time: 7/3/19	
Project Name: SM1 MW	
Job No.: 379.007.06	
Recorded By: AR	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-01	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

12:50 Bail – 6 gal
12:55 Surge
13:10 Bail – 9 gal
13:15 Surge
13:30 Bail – 9 gal

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(30.90 – 16.61) x ~~4~~ 4 ²

Well Depth to | Depth water | Well Diameter

X 10 casing volumes X 0.0408 = ~~94~~ 93.3 gallons

Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time 13:41

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: TDS	Observations (color, well condition, odor, cloudiness, etc.)
13:42		6.54	1858	21.0	>1000	237	1315	
13:45		6.72	1601	19.4	>1000	217	1120	
13:47		6.84	1391	19.2	>1000	208	966.5	
13:51		7.07	1577	19.6	>1000	90	1103	
13:53		7.11	1519	19.4	>1000	97	1060	
13:55		7.09	1387	19.4	117	71	961.3	
13:57		7.08	1361	19.3	343	89	947.5	
13:59		7.08	1353	19.3	215	92	944.4	
14:01		7.07	1329	19.2	104	75	922	
14:03		7.18	1322	19.3	69.6	120	920.1	
14:05		7.11	1313	19.1	45.3	94	911.5	
14:07		7.04	1309	19.2	34.4	91	906.6	
14:09		7.11	1299	19.2	25.8	102	901.9	
14:11		7.11	1292	19.2	21.3	95	897.5	
14:13		7.13	1288	19.0	13.4	113	895.4	
14:15		7.05	1281	19.1	23	95	888.9	
14:17		7.02	1281	19.0	21.6	96	887.8	
14:19		6.98	1272	19.0	20.8	84	883.6	
14:21		7.03	1268	19.0	8.28	89	879.7	
14:23		7.06	1266	19.0	6.07	103	879.4	
14:25		7.09	1265	19.0	4.73	101	878.3	
14:35		7.08	1259	19.1	4.65	87	871.1	
14:37		7.03	1257	19.0	3.10	83	869.5	

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 2 of 2	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☐ Monitoring	☐ Extraction	☐ Other
SM-01	Well Material:	☐ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: TDS	Observations (color, well condition, odor, cloudiness, etc.)
14:39	100	7.00	1747	19	3.54	78	868.0	

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page:	1 of 3
Date/Time:	7/3/19
Project Name:	SMI MV
Job No.:	379.007.060
Recorded By:	AA
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-02	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing): 29.50

Water-Level Depth (WL in feet below top of casing): 17.39

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☒ Other-Type peripump / geopump

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from 15 to 30

PURGE VOLUME CALCULATIONS:

(29.50 (Well Depth to) - 17.39 (Depth water)) X 4² (Well Diameter)

X 10 casing volumes X 0.0408 = 79.05 gallons (Calculated Purge Volume)

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other:	Observations (color, well condition, odor, cloudiness, etc.)
1010		Bail						
1013	4.5 gallons	bailed						
1015		Surge						
631		end surge						
1032		Bail						
1047	4 gallons	bailed					DTW: 25.23	
1048		Surge					DTW = 18.32	
1108	9 gallons	bailed					DTW = 21.00	
1113		Surge					~~DTW = 19.35~~	
1126		Bail						
1322	16.5	gallons bailed					DTW: 19.6	
1200	pump to	on						
							pumping	
1206		7.14	1755	20.6	1009	142.7	@0.5 L/min	
1212		7.12	1715	20.1	800	147.1		
1214		7.12	1672	20.1	555	147.7		
1216		7.08	1619	20.1	440	148.8	DTW = 19.35	
1218		7.02	1558	20.1	354	153		
1220		6.89	1502	20.0	336	161.7		
1222								
1224								
1226							DTW = 19.35	some bubbles
1228		6.88	1503	20.0	317	164.2		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 2 of 3	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-02	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1236		6.86	1500	20.0	246	173.6		
1238		6.83	1496	20.0	273	175.4	DTW = 19.15	
1248		6.75	1489	20.0	179	184.4		
1258							@ 0.5L/50sec	≈ 0.6L/m
1308		6.72	1460	19.8	81.6	193.8	@DTW 18.87	
1310		6.71	1457	19.8	61.09	194.4		
1312		6.70	1438	19.8	55 5	145.2		
1314		6.70	1434	19.8	46.6	195.4		
1316		6.70	1432	19.8	52.01	195.7		
1318		6.69	1434	19.8	68.7	196.1		
1320		6.69	1434	19.9	53.03	196.2		
1322		6.69	1433	19.8	48.87	196.3		
1324		6.69	1435	19.8	42.9	196.3		
1326		6.69	1437	19.8	44.4	196.5		
1328		6.69	1437	19.8	44.6	196.6		
1330		6.69	1438	19.8	40.40	196.6		
1332		6.69	1439	19.9	38.93	196.6		
1334		6.69	1435	19.7	49.40	196.6		
1336		6.69	1438	19.7	67.00	196.7	@ DTW = 18.75	
1354		6.69	1438	19.7	40.00	197.2		
1356		6.69	1436	19.6	37.91	197.3		
1358		6.69	1435	19.7	31.31	197.6		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 3 of 3	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☐ Monitoring	☐ Extraction	☐ Other
SM-02	Well Material:	☐ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1402		6.69	1434	19.7	35.00	197.8		
1404		6.69	1432	19.6	30.45	198.0		
1406		6.69	1432	19.6	23.66	198.1		
1432		6.69	1421	19.5	12.25	197.7		
1438		6.69	1418	19.4	12.53	197.7		
1440		6.69	1417	19.5	10.10	197.6		
1510		6.69	1419	19.4	9.68	197.8		
1513		6.69	1416	19.4	11.02	196.8		
1524		6.69	1418	19.4	12.44	196.5	DTW = 18.8	

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 1 of 2	
Date/Time: 07-01-19 / 0800	
Project Name: SM1 MV	
Job No.: 379.007.06	
Recorded By: AA	
Sampled By:	

Well No.:	Well Type:			
SM-03	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing): 27.5 (30) Prior to surge + bail

Water-Level Depth (WL in feet below top of casing): 13.3

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from 15 to 30

1.5gal/min

PURGE VOLUME CALCULATIONS:

(30.10 (After surge + bail) - 13.3) X 4 ²

Well Depth to | Depth water | Well Diameter

X 10 casing volumes X 0.0408 = 109.6 gallons

Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping (Time)	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
0906		Bail						
0919	16 gallons	baited						
0920		Surge						
0937		end surge						
0938		Bail						
0941	10.5 gallons	baited						
0944		Surge						
1000		end surge						
1004		Bail						
1010	18 gallons	baited						
1022		pump on						
		7.00	1450	19.3	2871	247.3		
1024		7.09	1451	19.3	3395	241.6		
1026		6.99	1358	19.3	3090	235.5		
1028		7.12	1460	19.4	2159	227.7		
1030		7.03	1420	19.3	2606	222.5		
1032		6.94	1221	19.2	96.6	214.4		
1034		6.91	1209	19.3	61.6	204.7		
1036		6.91	1210	19.3	35.18	198.3		
1038		6.90	1208	19.3	24.81	191.3		
1040		6.90	1202	19.3	20.83	186.1		
1042		6.90	1201	19.3	15.58	181.5		
1044		6.90	1199	19.3	12.82	176.9		
1046	pump off							

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 2 of 2	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☐ Monitoring	☐ Extraction	☐ Other
SM-03	Well Material:	☐ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1055	— pump on →							
		7.00	1197	19.2	50.50	191.3		
1058		6.96	1192	19.2	51.10	181.4		
1100		6.94	1190	19.2	166.6	173.1		
1102		6.97	1248	19.2	126.6	175.6		
1104		6.93	1182	19.2	27.04	169.6		
1106		6.93	1180	19.2	26.8	162.6		
1108		6.92	1174	19.1	24.4	158.1		
1110		6.92	1170	19.2	17.64	155.1		
1112		6.91	1167	19.1	13.92	152.6		
1114		6.91	1165	19.1	11.96	150.5		
1116		6.91	1165	19.2	10.21	149.0		
~~1118~~	~~—~~	~~6.91~~	pump off	@ 1117				
~~1120~~	~~110~~							

→ Development Completion Time ~2.18 hrs Total Gallons Removed ~110

(2 drums used)

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 1 of 2	
Date/Time: 7/11/19	
Project Name: SMI MW	
Job No.: 379.007.06	
Recorded By: AA	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-04	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing): 30.20

Water-Level Depth (WL in feet below top of casing): 13.10

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from 15 to 30

PURGE VOLUME CALCULATIONS:

pumping rate 1.5 gal/min

(30.2 - 13.1) X 4 ²

Well Depth to | Depth water | Well Diameter

X 10 casing volumes X 0.0408 = 111.6 gallons

Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping (Time)	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1145	—	Bail	—					
1148	4.5	gallons bailed.						
1149	—	Surge	—					
1205	—	end Surge	—					
1211	—	Bail	—					
1215	12 gallons bailed.							
1216	—	Surge	—					
1230	—	Bail	—					
1237	~~42~~ gallons bailed							
1332	—	pump on	—					
		7.40	1114	19.7	2500	128.9		
1334		7.19	1083	19.6	1987	91.2		
1336		7.11	1057	19.6	1048	65.9		
1338		7.05	1040	19.5	695	59.0		
1340		7.01	1029	19.4	428	56.0		
1342		7.00	1025	19.5	377	54.2		
1344		6.99	1014	19.5	961	57.2		
1346		6.97	1010	19.5	198	67.8		
1348		6.96	1003	19.4	126	77.2		
1350		6.96	1004	19.6	100	81.6		
1352		6.95	996	19.5	77.1	84.1		
1354		6.95	994	19.5	57	85.5		
1356		6.95	989	19.5	38.04	86.4		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 2 of 2	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-04	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1358		6.94	988	19.5	29.10	87.3		
1400		6.94	987	19.5	24.72	87.8		
1402		6.94	985	19.4	19.73	88.3		
1404		6.94	984	19.4	14.75	87.8		
1406		6.94	983	19.4	12.39	88.1		
1408		6.93	982	19.4	10.57	88.5		
1410		6.93	982	19.5	8.14	88.6		
1412		6.94	982	19.5	6.96	88.7		
1414		6.93	980	19.4	6.80	88.7		
~~1418~~ 1416		6.94	981	19.5	5.25	87.4		
~~1420~~ 1418		6.93	979	19.4	4.72	89.4		
~~1422~~ 1420		6.93	978	19.4	4.31	87.5		
~~1424~~ 1422		6.93	978	19.4	3.68	89.3		
~~1426~~ 1424		6.94	987	19.4	3.30	89.1		
~~1428~~ 1426		6.93	979	19.4	2.88	89.5		
1428		6.94	977	19.4	2.85	88.3		
1430		6.93	976	19.4	2.58	88.4		
1432		6.93	974	19.4	2.37	88.8		
1434		6.93	975	19.4	2.30	89.4		
1436		6.93	976	19.4	2.16	90.1		
1438		pump off						

→ Development Completion Time_____ Total Gallons Removed ~~_____~~ ~120

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page:	1 of 4
Date/Time:	7/1/19
Project Name:	SM1 MW
Job No.:	379 007 06
Recorded By:	AK
Sampled By:	

Well No.:	Well Type:			
SM-05		☒ Monitoring	☐ Extraction	☐ Other
	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing): 30.12

Water-Level Depth (WL in feet below top of casing): 12.20

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from 15 to 50

PURGE VOLUME CALCULATIONS:

(30.12 - 12.20) X 4 ²

Well Depth to — Depth water — Well Diameter

X 10 casing volumes X 0.0408 = 116.9 gallons

Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Time / Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1513	—	Bail	—					
1520	12 gallons	bailed	—					
1520	—	Surge	—					
1539	—	Bail	—					
1544	12 gallons	bailed						
1600	—	surge	—					
1605	12 gallons	bailed						
1612	pump	on						
		7.44	1125	20.3	1902	124.3		
1614		7.27	1106	19.7	1985	97.3	pumping rate @ 0.5 gal/min	
1616		7.23	1102	19.8	2083	78.6		
1618		7.20	1091	19.8	2323	66.0		
1620		7.20	1075	19.8	2050	57.3		
1622		7.18	1075	19.9	2218	52.1		
1624		7.16	1071	19.9	2035	48.6		
1626		7.14	1061	19.9	1946	44.0		
1628		7.14	1053	19.9	1818	40.0		
1630		7.14	1046	19.9	1911	34.7		
1632		7.12	1043	19.9	1548	30.7		
1634		7.13	1044	19.8	1247	35.2		
1636		7.15	1134	19.8	1087	39.7		
1638		7.16	1134	19.8	1070	42.9		
1640		7.15	1127	19.8	1244	43.5		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 2 of 4	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.: SM-05	Well Type:	☐ Monitoring	☐ Extraction	☐ Other
	Well Material:	☐ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☒ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
1642		7.14	1118	19.8	1037	43.4		
1644		7.13	1114	19.8	1040	42.1		
1646		7.14	1104	19.9	957	41.4		
1648		7.13	1100	19.8	789	40.2		
1650		7.12	1101	19.8	952	39.3		
1652		7.12	1088	19.8	970	34.7		
1654		7.12	1116	19.9	780	34.4		
1656		7.15	1045	19.8	781	18.2		
1658		7.14	1050	19.8	770	14.1		
1700		7.15	1041	19.8	585	8.4		
1702		7.13	1045	19.7	570	7.4		
1704		7.12	1040	19.7	498	4.2		
1706		7.12	1059	19.7	480	5.0		
1708		7.12	1053	19.7	428	3.1		
1710		7.12	1050	19.7	394	2.2		
1712		7.12	1047	19.7	270	0.2		
1714		7.12	1043	19.7	298	-3.5		
1716		7.12	1042	19.7	242	-6.1		
1718		7.11	1026	19.7	241	-9.8		
1720		7.11	1028	19.6	229	-9.6		
1722		7.11	1026	19.6	235	-9.9		
1724		7.11	1024	19.6	133	-11.8		
1726		7.10	1028	19.6	151	-10.9		To be resumed Wed 7/3/19
1728		7.09	1030	19.6	138	-10.2		
1730		7.09	1030	19.6	120	-10.7		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 3 of 4	
Date/Time: 7/3/19	
Project Name: SM1 MW	
Job No.: 375.607.06	
Recorded By: AA	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-05	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing): 12.14

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
7/3/19 0755	→	7.01	1084	19.1	225	167.5	resume pumping	
0756		6.92	1025	19.1	731	145.8		
0758		6.85	1021	19.2	774	128.6		
0800		6.82	1019	19.2	685	122.3	pumping @ 0.5 gal/min near bottom	
0802		6.78	1013	19.2	419	115.6		
0804		6.72	1001	19.2	395	112.5		
0806		6.65	993	19.2	369	111.2		
0808		6.62	988	19.2	297	111.6		
0810		6.62	987	19.2	262	112.1		
0812		6.64	984	19.3	187	110.9		
0814		6.64	985	19.3	211	110.7		
0816		6.65	983	19.2	235	110.1		
0818		6.65	982	19.3	159	110.6		
0820		6.66	981	19.2	216	109.7		
0822		6.66	981	19.2	234	109.5		
0824		6.67	981	19.2	36.02	109.1	pump raised ~2'	
0826		6.73	992	19.2	28.03	109.6		
0828		6.66	981	19.2	15.54	114.8		
0830		6.65	978	19.2	9.44	118.1		
0832		6.66	980	19.2	11.26	119.0	WL = 13.0'	
0834		6.66	980	19.2	14.27	119.7		
0836		6.67	980	19.2	13.25	119.9		

→ Development Completion Time_____ Total Gallons Removed_____

PES Environmental, Inc.
Engineering & Environmental Services

WELL DEVELOPMENT FORM

Page: 4 of 4	
Date/Time:	
Project Name:	
Job No.:	
Recorded By:	
Sampled By:	

Well No.:	Well Type:	☒ Monitoring	☐ Extraction	☐ Other
SM-05	Well Material:	☒ PVC	☐ Stainless Steel	☐ Other

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other_____

Total Depth of Casing (TD in feet below top of casing):_____

Water-Level Depth (WL in feet below top of casing):_____

PURGING METHOD

☐ Bailer-Type:_____

☐ Submersible ☐ Centrifugal ☐ Bladder

☐ Other-Type_____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other_____

Depth in feet (BTOC):_____

Screen Interval in feet (BTOC) from_____to___

PURGE VOLUME CALCULATIONS:

(_____ - _____) X _____^{2} X 10 casing volumes X 0.0408 = _____gallons

Well Depth to | Depth water | Well Diameter | Calculated Purge Volume

FIELD PARAMETER MEASUREMENT

→ Start Time _____

Minutes Since Pumping	Gallons Removed	pH (SU)	Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTUs)	ORP (mV)	Other: _____	Observations (color, well condition, odor, cloudiness, etc.)
7/28/19								
0838		6.68	982	19.2	10.47	120.5		
0840		6.68	980	19.2	9.81	120.9		
0842		6.68	980	19.2	9.48	120.8		
0844		6.68	979	19.2	8.26	121.1		
0846								
0848								
0850								
0852		6.70	980	19.2	7.61	121.7		
0854		6.70	980	19.2	7.02	121.9		
0856		6.70	979	19.2	7.11	122.1		
0858		6.71	980	19.2	6.71	122.2		
0900		6.70	979	19.2	6.40	122.4		
0902		6.71	979	19.2	6.51	122.6		
0904		6.71	979	19.2	6.27	122.4		
0906		6.25	980	19.2	6.71	122.7		
0908		6.35	983	19.2	6.34	122.7		
0910		6.72	983	19.2	~~6.72~~	123.1	5.85	
0912		6.72	981	19.2	5.76	123.0		
0914		6.72	981	19.3	5.45	123.4		
0916		6.72	977				pump dropped / pull back up	
0918		6.81	976	19.3	58.25	100.8		
0920		6.80	974	19.3	49.00	98.8		
0922		6.77	973	19.3	54.00	100.2		
0924		6.75	973	19.3	30.06	103.6		

→ Development Completion Time_____ Total Gallons Removed_____

0928 | 6.77 | 974 | 19.3 | 20.50 | 109.8 | pump off @ 0928

WELL DEVELOPMENT DATA SHEET

Project #: 190628-PA1	Client: PES
Developer: PA	Date Developed: 6/28/19
Well I.D. R-20A	Well Diameter: (circle one) (2) 3 4 6 ___
Total Well Depth: Before 29.90 After 30.30	Depth to Water: Before 9.72 After 9.80
Reason not developed: —	If Free Product, thickness: —
Additional Notations:	

Volume Conversion Factor (VCF):
{12 x (d^2/4) x π} /231
where
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
(2")	=	(0.16)
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

20.10

3.2	X	~~3~~ 10	=	32
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☑ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump —
Other equipment used —

TIME	TEMP (F)	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0810	- Began surging well w/ 2" surge block -					
0825	- Finished surging well -					
~~0824~~ 0831	66.2	7.55	840	>1000	3.5	*Began Purge @ 0827
0835	66.1	7.52	902	>1000	7.0	
0846	66.0	7.19	854	757	10.2	*hard bottom achieved
0853	65.9	7.37	856	276	13.7	
0900	66.1	7.24	844	>1000	17.2	
0905	- Pulled PAD pump -				~~20.7~~ (PA)	*surge well 0900-0902
0930	- compressor on sample rig went down / switch to hand bail -					
0956	66.2	7.23	857	>1000	20.7	
1009	66.4	7.24	843	>1000	23.9	
1021	66.2	7.26	845	>1000	27.1	
1031	66.1	7.25	838	>1000	30.3	
Did Well Dewater? NO		If yes, note above. —		Gallons Actually Evacuated:		80.2

WELL DEVELOPMENT DATA SHEET

Well I.D. R-20A	PAGE 2 OF 2
Project #: 190628-PA1	Client: PES

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1041	66.1	7.31	851	>1000	33.5	
1055	- Began resurging well w/ 2" surge block					
1110	- Stop surge on well -					
1120	- Bailed 45 gallons via bailer)					Total volume removed (38.5Gal)
1131	Began purge w/ PAD -					
1142	68.4	7.66	837	>1000	41.7	
1149	67.9	7.51	834	>1000	45.2	
1157	67.1	7.48	845	358	48.7	
1204	67.2	7.45	851	187	52.2	
1212	67.1	7.43	850	100	55.7	
1215	- Resurged well -				~~59.2~~	
1226	67.1	7.41	886	>1000	59.2	
1233	67.0	7.40	860	>1000	62.7	
1241	67.1	7.37	867	501	66.2	
1249	67.0	7.36	872	126	69.7	
1256	67.1	7.36	875	62	73.2	
1303	67.1	7.35	890	36	76.7	
1310	67.0	7.35	892	26	80.2	
	- Development complete -					

WELL DEVELOPMENT DATA SHEET

Project #: 190703 - WW1	Client: PES
Developer: TS. WW	Date Developed: 7-3-19
Well I.D. C-3 .	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 32.81 After 33.79	Depth to Water: Before 10.82 After 10.73 .
Reason not developed:	If Free Product, thickness:
Additional Notations: Swab well 15 min prior	

Volume Conversion Factor (VCF):	Well dia.		VCF
$\{12 \times (d^2/4) \times \pi\} / 231$	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

3.5	X	10	=	35
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump: Middleberg
Other equipment used: 2" swab

TIME	TEMP ~~(F)~~ °C	pH	Cond. (mS or ~~µS~~)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0807	19.7	5.80	1066	>1000	3.5	DARK sediment brown, HARD BOTTOM
0811	19.7	5.91	1062	>1000	7	" "
0816	19.4	6.31	1074	>1000	10.5	" "
0819	19.9	6.52	1076	>1000	14.0	milky brown Hard bottom
0823	19.9	6.69	1074	>1000	17.5	" "
0827	19.9	6.80	1075	>1000	21.0	" "
0831	19.8	6.88	1077	>1000	24.5	" "
0835	19.7	6.97	1075	>1000	28.0	CLOUDY BROWN HARD BOTTOM
0838	19.3	6.80	1076	>1000	31.5	" "
0841	19.9	6.80	1083	>1000	35.0	cloudy brown, hard bottom WL: 10.84
15 MIN - RESWAB BED WELL & RAISE PUMP TO 13'						PER CLIENT
0922	22.1	6.58	1064	>1000	38.5	WL: 10.91 Brown cloudy hard bottom
0929	21.5	7.13	1084	>1000	42	WL: 11.02
Did Well Dewater?	If yes, note above.			Gallons Actually Evacuated:		

WELL DEVELOPMENT DATA SHEET

Well I.D. C-3	PAGE 2 OF 2
Project #: 190703-WW1	Client: PES

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0934	22.3	7.56	1074	>1000	45.5	MUDDY BROWN WL: 11.00
0939	21.6	7.50	1083	>1000	49.0	WL: 10.94 CLOUDY BROWN
0947	22.5	7.03	1078	494	52.5	WL: 10.91 / CLOUDY BROWN
0952	21.4	7.03	1085	571	56	WL: 10.94 / CLOUDY BROWN
0959	21.7	7.34	1083	490	59.5	WL: 10.94 / "
1004	21.5	7.19	1084	348	63.0	WL: 10.92 / "
1011	21.4	7.35	1083	285	66.5	WL: 10.90 / "
1015	21.2	6.96	1090	207	70.0	WL: 10.81 / "
1028	21.0	7.26	1085	195	73.5	WL: 10.83 / CLOUDY
1029	20.8	7.18	1084	269	77.0	WL: 10.85 / CLOUDY
1033	21.1	6.94	1090	217	80.5	WL: 10.87 / " "
1041	21.1	6.93	1089	287	84.0	WL: 10.81 "
1048	21.3	7.04	1091	216	87.5	WL: 10.81 "
1056	22.7	7.52	1075	200	91.0	WL: 10.84 "
1102	21.9	7.75	1077	140	94.5	WL 10.93 "
1108	21.5	7.11	1089	101	98.0	WL 10.83 SLIGHTLY CLOUDY
1114	21.0	7.05	1082	74.5	101.5	WL 10.81 "
1120	20.8	7.17	1092	65.5	105.0	WL: 10.99 "
1123	20.5	7.07	1091	44	108.5	WL 11.07 CLEAR

APPENDIX D

MONITORING WELL AND SOIL VAPOR PROBE SURVEY REPORT

CSS

CSS ENVIRONMENTAL SERVICES, INC
Managing Cost, Scope and Schedule
100 Galli Drive, Suite 1
Novato, CA 94949
Telephone: (415) 883-6203
Facsimile: (415) 883-6204

Site Positions

CSS Project 7002 - PES Environmental

[redacted]

[redacted]

Linear Units of Measure: Int. Feet

[redacted]

Vertical tied to monitoring well S03-B1 TOC.

Site ID	Site Descriptor		Position	95% Error	Fix Status
[redacted]					
		Elv.	60.50	0.000	
[redacted]					
[redacted]					
		Elv.	64.91		
[redacted]					
		Elv.	61.11		
[redacted]					

CSS
Managing Cost, Scope and Schedule
100 Galli Drive, Suite 1
Novato, CA 94949
Telephone: (415) 883-6203
Facsimile: (415) 883-6204

[redacted]

Elv. 62.66

[redacted]

Elv. 62.41

[redacted]

Elv. 61.79

[redacted]

Elv. 61.87

[redacted]

[redacted]

APPENDIX E

REGENESIS APPLICATION SUMMARY REPORT

REGENESIS
REMEDIATION SERVICES
Technology-Based Solutions for the Environment

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

September 9, 2019

REGENESIS Proposal No. ChL63500

Susan Gahry
PES Environmental
7655 Redwood Blvd, Suite 200
Novato, CA 94945

SUBJECT: **Application Summary Report for Remedial Services at the SMI Holdings Mountain View Site**

Dear Ms. Susan Gahry,

REGENESIS Remediation Services (RRS) has recently completed an in-situ injection application of S-MicroZVI™, AquaZVI™, and Chemical Reducing Solution® at the SMI Holdings Mountain View site located at 455 East Middlefield Road, Mountain View, CA 94043. The goal of the remedial application was to reduce the levels of chlorinated solvent concentrations within the defined treatment areas to the upgradient concentration of approximately 20 µg/L. RRS employed in-situ chemical reduction technologies to meet remediation goals.

RRS mobilized product, support pickup truck, injection trailer, and personnel to the site to begin work over eighteen (18) days on July 1 - 26, 2019. RRS staffed this project with an experienced Project Supervisor who ensured a safe, successful injection application. The scope of work included a total of 132 direct push injection locations over a 29,000 ft^2 area.

Please review the attached application summary page, injection log, and photo log for more detail on the application.

RRS appreciates the opportunity to work at this site with PES Environmental. RRS will be available to interpret the field data as it is collected or answer any questions. If you need additional information regarding the application process or attached field notes, please contact Andrea Maben at 949.899.0729 or Dan Nunez at 949.910.1977.

Sincerely,

Andrea Maben
West Region Project Manager
REGENESIS Remediation Services

Dan Nunez
Southwest District Manager
REGENESIS Remediation Solutions

REGENESIS
REMEDIATION SERVICES
Technology-Based Solutions for the Environment

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

Table of Contents

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1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

Application Summary Page

1. Overview

Client: PES Environmental
Client Project Manager: Susan Gahry
RRS Project Manager: Andrea Maben
RRS Project Supervisor: Brian Henderson
Project Name: SMI Holdings Mountain View
Site Address:455 E Middlefield Rd, Mountain View, CA
Project Dates: 7/1/19 to 7/26/19

2. Treatment Technology

RRS applied S-MicroZVI™, AquaZVI™, and Chemical Reducing Solution® (CRS) at the SMI Holdings Mountain View Site (Site) to remediate the two targeted treatment areas. Application of this product is designed to remediate chlorinated solvents from the soil and groundwater. This report summarizes the work that was completed over four weeks in one single mobilization.

S-MicroZVI™ and AquaZVI are colloidal, sulfidated zero-valent iron (ZVI) products in which ZVI particles are coated with iron sulfide (FeS) proven to accomplish *In-Situ* Chemical Reduction (ISCR) of contaminants within the subsurface environment. Additionally, the iron sulfide surface enhances the rate of reduction of common groundwater contaminants such as trichloroethene (TCE) and cis-1,2-dichlorotheylene (cis-1,2-DCE). S-MicroZVI is delivered as a colloidal suspension 40% ZVI by weight in glycerol with a particle size of less than 5 microns. AquaZVI uses water in the suspension instead of glycerol. S-MicroZVI and AquaZVI are manufactured using a state-of-the-art sulfidation process resulting in a particle coating which increases activation toward specific contaminants and extends performance longevity. S-MicroZVI and Aqua ZVI destroy contaminants abiotically and are applied to stimulate ISCR-enhanced bioremediation.

CRS® (Chemical Reducing Solution) is an iron-based reagent that facilitates biogeochemical in-situ chemical reduction (ISCR) of halogenated contaminants such as chlorinated ethenes and ethanes. CRS is a pH neutral, liquid ferrous iron (Fe^{2+}) solution. CRS provides a soluble, food-grade source of Fe^{2+}, designed to precipitate as reduced iron sulfides, oxides, and/or hydroxides. These Fe^{2+} minerals are capable of destroying chlorinated solvents via chemical reduction pathways, thus improving the efficiency of the overall reductive dechlorination process by providing multiple pathways for contaminant degradation in groundwater.

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3. Injection Plan

A. Design Summary

Two areas were treated at this site, the source area and the downgradient plume. The Source Grid area measures 10,000 sq. ft; and the Barriers 19,000 sq. ft, consisting of four independent barriers with approximately 50 ft. between barriers. The target treatment zone for both areas was from 15 to 30 ft bgs. During application, the amount of water used was reduced to allow the injections to be completed in the time frame allowed by the property owner. Additionally, to ensure coverage in the Barriers, two points were moved from the Source Grid to the Barriers.

The injection points in the Source Grid were spaced 15 feet on center and injection points in the Barriers were spaced 8 feet on center. Product amounts, number of injection points, treatment volumes, and application volumes are listed below in Table 1 and 2.

Table 1: Application design summary for Source Grid area.

	Original Design	**Actual Application**
No. of DPT injection points	83	81
S-MZVI applied (lbs)	27,000	26,350
AquaZVI applied (lbs)	-	-
CRS applied (lbs)	4,400	4,294
Total volume (gals)	68,972	50,327
Volume per vertical ft (gals/ft)	55	36.67
Treatment interval ft bgs	15-30	15-30

Table 2: Application design summary for Barriers.

	Original Design	**Actual Application**
No. of DPT injection points	49	51
S-MicroZVI applied (lbs)	3,000	3,650
AquaZVI applied (lbs)	36,000	36,000
CRS applied (lbs)	5,200	5,306
Total volume (gals)	44,691	38,250
Volume per vertical ft (gals/ft)	60	50
Treatment interval ft bgs	15-30	15-30

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1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

4. Application

A. Job Site Inspection

REGENESIS Remediation Services (RRS), PES, and Penecore Drilling staff arrived on-site on July 1st, 2019. A health and safety tailgate meeting was performed with all field staff present. RRS performed site reconnaissance, becoming familiar with the project site, storage area, water source, and completed a jobsite safety inspection. Notable site hazards included: vehicle traffic through exclusion zones, close proximity of injection locations to storm drains and other on-site underground utilities, routing of fire hose from hydrant to injection trailer, and lack of shade during the middle of the day. Once completed, the injection trailer was staged and prepared for product transfer and mixing.

B. Product Delivery

PES personnel accepted the first delivery of 30,000 pounds of S-MicroZVI™ and 9,600 pounds of CRS® on June 28th, 2019. A second shipment of 36,000 pounds of AquaZVI™ was delivered to site while injections were underway on July 16th, 2019. REGENESIS arranged delivery and return to exchange two older units of AquaZVI (4,000 lb total) for new units on July 24th, 2019. All product totes and pallets were stored in the parking lot within the exclusion zone and easily accessible to RRS personnel for the duration of the project.

Product Delivery Schedule:

June 28th, 2019:
- 30,000 lbs. S-MicroZVI™
- 9,600 lbs. CRS®

July 16th, 2019:
- 36,000 lbs, AquaZVI™

July 24th, 2019:
- 4,000 lbs AquaZVI™ returned and exchanged 4,000 lbs of old product for new product.

C. Injection Sequence

PES marked out and pre-cleared all the injection points to ensure the injection points did not interfere with existing underground utilities using air-knifing. A few locations within landscaped areas which were not accessible by the air-knifing rig were hand augured to a depth of 5 feet bgs prior to injecting. RRS applied the REGENESIS technologies by mixing the products in the RRS injection trailer and injecting through temporary Direct Push Technology (DPT) injection points. The injection trailer is fully enclosed and contains mixing tanks, pumps, and delivery system equipped for direct connection to the injection points.

The application pump is a multiple diaphragm positive displacement pump designed to prevent pulsation of the remediation chemistry while being applied. Safety bypass mechanisms are also installed to release back pressure buildup in the event injection pressures exceed commonly accepted application ranges. We delivered the remediation chemistry at up to four (4) separate delivery lines simultaneously, each having the capability of monitoring injection pressures and injection flowrates/totals at any given time.

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The remediation chemistry solutions were prepared in two (2) 350-gallon conical tanks that are configured with chemically resistant materials. A propeller mixer mounted to the mixing tanks was used to homogenously mix the solutions. Mixing water was provided by an on-site fire hydrant (under a City permit obtained by PES) and conveyed to the injection trailer via a fire hose directly from the injection trailer.

D: Deviations from Design and Work Plan

After proper injection distribution was confirmed via groundwater parameter changes in nearby monitoring wells, the volume of water injected was reduced in order to meet the tight application schedule which increased product concentration; however, the amount of product per location remained as prescribed. The reduction in volume in the Source Grid area occurred while injections were underway. See Table 1- Source Grid area Injection Log for specifics on when the change occurred. Design modifications to reduce overall volume in the Barriers occurred before injections began in the treatment area.

Two locations from the Source Grid area were moved to the Barriers to ensure adequate coverage. To compensate for variance in volume and concentration, RRS distributed the product over all barrier locations and kept the volume per vertical foot consistent with the barrier design.

Project Information

SMI
Mountainview, CA
Dissolved Plume
Prepared For:
PES

Target Treatment Zone (TTZ) Info	Unit	Value
Barrier Length	ft	102
Top Treat Depth	ft	15.0
Bot Treat Depth	ft	30.0
Vertical Treatment Interval	ft	15.0
Treatment Zone Volume	ft³	296,820
Treatment Zone Volume	cy	10,993
Soil Type	---	sand
Porosity	cm³/cm³	0.33
Effective Porosity	cm³/cm³	0.22
Treatment Zone Pore Volume	gals	732,721
Treatment Zone Effective Pore Volume	gals	488,481
Fraction Organic Carbon (foc)	g/g	0.002
Soil Density	g/cm³	1.7
Soil Density	lb/ft³	108
Soil Weight	lbs	3.2E+07
Hydraulic Conductivity	ft/day	125.0
Hydraulic Conductivity	cm/sec	4.41E-02
Hydraulic Gradient	ft/ft	0.003
GW Velocity	ft/day	1.70
GW Velocity	ft/yr	623
Contaminant Demand and Dosing	**Unit**	**Value**
Dissolved Phase Contaminant Mass	lbs	9
Sorbed Phase Contaminant Mass	lbs	8
Oxygen and Nitrate Mass	lbs	61
Total Mass Contributing to ZVI Demand	**lbs**	**78**
Mass Flux and S-MZVI Demand	**Unit**	**Value**
Groundwater Mass Flux	L/day	16,247
Stoich S-MZVI Demand	lbs	1,501
Total Mass Flux S-MZVI Requirement	lbs	6,340
Total S-MZVI Demand	**lbs**	**7,850**
Application Dosing		
S-MZVI to be Applied	**lbs**	**35,650**
CRS to be Applied	**lbs**	**5,200**

S-MZVI® & CRS Application Design Summary

Barrier Application Revised 7/18/19

Dissolved Plume

Treatment Type	Barrier	Field Mixing Ratios
Average Length Perpendicular to Flow	102	S-MZVI Concentrate per Pt (lbs)
Spacing Within Rows (ft)	8	777
Number of Rows	4	Mix Water per Pt (gals)
DPT Injection Points	**51**	687
Top Application Depth (ft bgs)	15	S-MZVI & CRS Mix Volume per Pt (gals)
Bottom Application Depth (ft bgs)	30	750
S-MZVI to be Applied (lbs)	**35,650**	Estimated Injection Radius (ft avg.)
S-MZVI to be Applied (gals)	2,026	4.6
S-MZVI Mix %	5.973%	Volume per Vertical Ft (gals/ft)
Volume Water (gals)	**33,031**	50.00
Total S-MZVI & CRS Mix Volume (gals)	38,251	
CRS to be Applied (lbs)	**5,200**	CRS Concentrate per Pt (lbs)
CRS to be Applied (gals)	594	102.0

450 lbs has been added to the barrier plus 2 additional injection points bringing the total to 51 IPS

Prepared by: Chris Lee-West Design Services
Date: 7/18/2019

Technical Notes/Discussion

Assumptions/Qualifications

In generating this preliminary estimate, Regenesis relied upon professional judgment and site specific information provided by others. Using this information as input, we performed calculations based upon known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to affect remediation of the site.

REGENESIS developed this Scope of Work in reliance upon the data and professional judgments provided by those whom completed the earlier environmental site assessment(s). The fees and charges associated with the Scope of Work were generated through REGENESIS' proprietary formulas and thus may not conform to billing guidelines, constraints or other limits on fees. REGENESIS does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where REGENESIS may serve as a supplier or subcontractor to an entity which seeks reimbursement from the Government for all or part of the services performed or products provided by REGENESIS, it is the sole responsibility of the entity seeking reimbursement to ensure the Scope of Work and associated charges are in compliance with and acceptable to the Government prior to submission. Where serving as a supplier or subcontractor to an entity which seeks reimbursement from the Government, REGENESIS does not knowingly present or cause to be presented any claim for payment to the Government.

Figure 1: Revised Barrier Design. 7.18.2019

EAST MIDDLEFIELD

455
EAST MIDDLEFIELD

485/487
EAST MIDDLEFIELD

Explanation

- Approximate Property Boundary
- EW-1 Groundwater Extraction Well
- SO-4 Groundwater Monitoring Well
- AS-5 Former Air Sparging Well
- VE-8 Former Vapor Extraction Well
- Sign
- Light
- Catch Basin
- Vault
- Electrical Vault
- DataCom
- Drain
- Electric Duct
- Electric HV
- Electric LV
- Extraction Water
- Fibre Optic
- Gas
- Irrigation Water +
- Sanitary Sewer
- Telecom Duct
- Water
- U — Exact location of utility unable to be traced
- \+ — Minor irrigation lines were not traced
- ? — Line clogged, could not trace further
- Mid and Distal Plume Area
- Source Area
- Proposed 3DME/S-MicroZVI/BDI Plus Injection Point
- SM-02 Proposed Groundwater Monitoring Well Location
- SV-01 Proposed Soil Vapor Probe Location (with vapor intake at approximately 5 ft bgs)
- 100 cis-1,2-DCE Isoconcentration Contour, µg/L (dashed where inferred)
- 100 TCE Isoconcentration Contour, µg/L (dashed where inferred)

Sources:

Base map and well locations from Kier & Wright Civil Engineers & Surveyors, Inc., April 15, 2001

Utility survey from IRIS Environmental, March 11, 2010 on behalf of the property owner (VeriSign, Inc.)

N

0 20

APPROXIMATE SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

Proposed Injection Plan
SMI Holding LLC
455, 485/487, 501/505 East Middlefield Road
Mountain View, California

PLATE 9

379.007.05.007	37900705007_WPFM_8-9	DRAFT	6/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

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1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

5. On-Site Work Summary

Injections were performed in one mobilization from July 1st to July 26th, 2019, on a Monday through Friday schedule. Each workday began with a safety tailgate meeting where safety topics were discussed including but not limited to: stop work authority, personal protective equipment (PPE), chemical handling, inclement weather, near misses, and the plan for the day's tasks. Drilling services were provided by Penecore Drilling of Woodland, California.

A. Treatment Area: Source Grid Area

A total solution of 50,327 gallons containing 26,350 pounds of S-MicroZVI and 4,294 pounds of CRS® was injected into 81 injection point locations in the Source Grid area using bottom-up injection methodology and an injection depth interval of three feet. The total injection interval was from 15-30 ft bgs. Flow rates were observed between 1 to 6.7 gallons per minute (GPM) and injection pressures ranged from 2 to 80 pounds per square inch (PSI). Source Grid area is shown in Figure 1. See Appendix A for detailed injection logs of the Source Grid Area.

B. Treatment Area: Barriers

A total solution of 38,250 gallons of remedial solution containing 36,000 pounds of AquaZVI, 3,650 pounds of S-MicroZVI, and 5,306 lb of CRS, was injected into 51 injection point locations in the Barrier using bottom-up injection methodology and an injection depth interval of three feet. The total injection interval in this area was 15-30 ft bgs. Flow rates were observed between 1 to 6.5 gallons per minute (GPM), and injection pressure observed were between 5 to 75 pounds per square inch (PSI). To reach beneath sidewalks, some angled boreholes were used for injection as noted on the injection logs in Appendix B.

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1011 Calle Sombra
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Fax: (949) 366-8090

C. Injection Point Locations

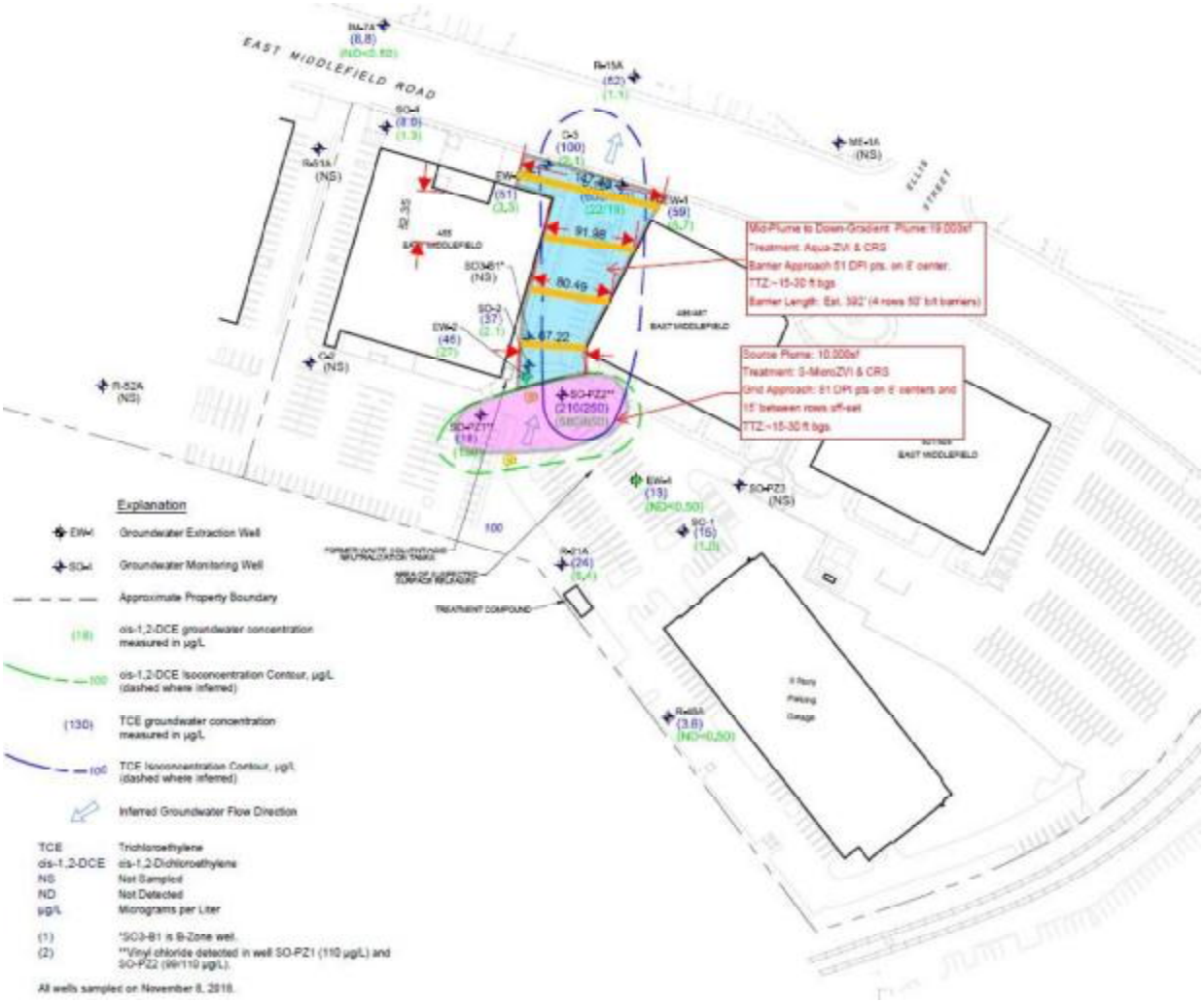

Figure 2: Map of treatment areas.

D. Conclusion

A total of 30,000 lbs. of S-MicroZVI, 36,000 lbs. of AquaZVI, and 9,600 lbs. of CRS were mixed, with total volume of 88,577 gallons (including 82,998 gallons of water) and applied at 132 injection point locations over two treatment areas. Injections took place over 18 working days between July 1st and 26th, 2019.

APPENDIX A: Source Grid Area Injection Logs

S-MicroZVI Sulfidated Zero-Valent Iron

CRS CHEMICAL REDUCING SOLUTION

PES Environmental-SMI Mountain View
S-MicroZVI and CRS Injection Summary Log
Source Grid Area
Table 1

REGENESIS REMEDIATION SERVICES
Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I1	7/1/2019*	11:03	27-30	18	1.94	0.00	20.00	20.00	830	652	ROI Testing location. Original design. Start at 10:55
		11:26	27-30	16	2.55	20.00	90.00	70.00			About 2' of rise in nearby well since starting.
		11:45	27-30	15	2.05	90.00	112.00	22.00			
		12:01	27-30	15	1.02	112.00	165.00	53.00			1 gpm at request of PES. Stop at 12:39
		13:37	24-27	22	3.98	165.00	330.00	165.00			Approval for 4 gpm flow rate. Start @ 13:30. Stop @ 14:24
		14:32	21-24	58	1.50	330.00	495.00	165.00			14:29-15:48
		16:15	18-21	45	3.66	495.00	563.00	68.00			15:50-16:31
	7/2/2019*	8:17	18-21	55	3.64	0.00	97.00	97.00			8:11-8:50
		8:50	15-18	30	5.21	97.00	267.00	170.00			8:50-10:04
I2	7/1/2019*	14:40	27-30	35	2.36	0.00	165.00	165.00	830	657	Original design. 14:36-15:30
		15:36	24-27	40	3.98	165.00	323.00	158.00			15:32-16:31
	7/2/2019*	8:17	24-27	25	3.59	0.00	7.00	7.00			8:11-8:15
		8:21	21-24	50	4.16	7.00	172.00	165.00			8:20-9:07
		9:25	18-21	10	5.74	172.00	337.00	165.00			9:07-10:03
		10:09	15-18	10	5.83	337.00	507.00	170.00			10:10-10:50
I3	7/1/2019*	15:03	27-30	24	2.98	0.00	165.00	165.00	830	659	Original design. 14:55-15:38
		16:18	24-27	45	4.32	165.00	261.00	96.00			15:39-16:31
	7/2/2019*	8:17	24-27	35	5.04	0.00	69.00	69.00			8:11-8:30
		8:55	21-24	60	2.76	69.00	234.00	165.00			8:30-9:38
		9:39	18-21	60	2.92	234.00	399.00	165.00			9:41-13:09
		13:15	15-18	15	5.76	399.00	569.00	170.00			13:00-13:48
I4	7/1/2019*	15:28	27-30	18	4.06	0.00	165.00	165.00	830	660	Original design. 15:13-16:04
		17:56	24-27	25	4.56	165.00	203.00	38.00			16:05-16:31
	7/2/2019*	8:17	24-27	25	4.66	0.00	127.00	127.00			8:11-8:46
		8:46	21-24	42	4.04	127.00	292.00	165.00			8:46-9:38
		10:04	18-21	35	5.13	292.00	458.00	166.00			9:38-10:22
		10:39	15-18	15	5.41	458.00	627.00	169.00			10:25-11:20
I5	7/2/2019*	10:30	27-30	40	5.14	0.00	165.00	165.00	830	664	Original design. 10:27-11:05
		12:55	24-27	15	5.18	165.00	330.00	165.00			11:07-13:13
		13:28	21-24	55	3.44	330.00	495.00	165.00			13:16-14:29
		14:41	18-21	10	4.82	495.00	660.00	165.00			14:30-15:15
		15:18	15-18	5	5.02	660.00	830.00	170.00			15:17-16:18
I6	7/2/2019*	11:08	27-30	45	5.60	0.00	165.00	165.00	830	731	Original design. 11:02-13:05
		13:14	24-27	60	3.14	165.00	330.00	165.00			13:07-14:18
		14:42	21-24	58	2.38	330.00	495.00	165.00			14:30-15:56
		8:18	18-21	55	2.90	0.00	165.00	165.00			8:15-9:16
		10:28	15-18	58	1.57	165.00	335.00	170.00			9:18-11:04. *396 gallons is the adjusted volume from 7/2
I7	7/2/2019*	11:29	27-30	10	5.89	0.00	165.00	165.00	830	664	Original design. 11:23-13:10
		13:14	24-27	10	6.04	165.00	330.00	165.00			13:10-13:44
		14:05	21-24	55	5.18	330.00	495.00	165.00			13:44-14:28
		14:42	18-21	25	3.88	495.00	660.00	165.00			14:30-15:28
		15:43	15-18	5	5.71	660.00	830.00	170.00			15:28-16:24
I8	7/2/2019*	14:50	27-30	35	5.18	0.00	165.00	165.00	830	755	Original design. 14:30-15:06
		15:43	24-27	15	4.66	165.00	330.00	165.00			15:06-15:46
		16:08	21-24	25	4.98	330.00	375.00	45.00			15:46-16:24. *300 gallons is the adjusted volume from 7/2
	7/3/2019	9:00	21-24	45	4.37	0.00	120.00	120.00			8:15-8:53
		9:08	18-21	35	4.37	120.00	285.00	165.00			8:54-9:58
		10:01	15-18	50	4.31	285.00	455.00	170.00			9:58-11:13
I9	7/3/2019	8:21	27-30	20	4.43	0.00	165.00	165.00	830	-	Original design. 8:08-9:01
		9:07	24-27	25	4.07	165.00	330.00	165.00			9:01-9:47
		10:01	21-24	10	4.48	330.00	495.00	165.00			9:47-10:23
		10:50	18-21	30	5.26	495.00	660.00	165.00			10:23-10:56
		11:21	5-18	15	5.86	660.00	830.00	170.00			10:56-11:28

*Noted as read off totalizer. Actual volume adjusted at end of day based off total tank volume pumped. Adjusted volume listed calculated on % difference.
Totalizer field calibration performed to adjust for remainder of application.

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I10	7/3/2019	8:21	27-30	15	5.52	0.00	165.00	165.00	830	-	Original design. 8:14-8:57
		9:02	24-27	20	5.31	165.00	330.00	165.00			8:57-9:28
		9:21	21-24	18	5.04	330.00	495.00	165.00			9:29-10:13
		10:32	18-21	15	5.18	495.00	660.00	165.00			10:13-10:54
		10:59	15-18	10	3.38	660.00	830.00	170.00			10:54-11:28. Water rising slowly in nearby vapor well. Reduced flow rate.
I11	7/3/2019	13:02	27-30	20	4.67	0.00	207.50	207.50	831	-	Original design. Close to extraction well. Omitting 15-18' interval, volume redistributed evenly across 18'-30' interval. 13:01-13:53
		13:56	24-27	10	2.44	207.50	415.00	207.50			13:53-15:05. Extraction well rising. Rate reduced until well no longer rising.
		15:18	21-24	25	3.59	415.00	501.00	86.00			15:05-15:46
	7/8/2019	8:30	21-24	45	4.42	0.00	121.50	121.50			8:11-9:10
		9:15	18-21	15	3.94	121.50	330.00	208.50			9:10-10:10
I12	7/3/2019	13:01	27-30	35	4.96	0.00	165.00	165.00	831	-	Original design. 12:56-13:43
		13:46	24-27	15	5.27	165.00	330.00	165.00			13:43-14:30
		14:36	21-24	5	4.86	330.00	495.00	165.00			14:30-15:16
		15:17	18-21	5	4.69	495.00	600.00	105.00			15:16-15:46
	7/8/2019	8:30	18-21	5	4.06	0.00	60.00	60.00			8:15-8:47
		9:02	15-18	5	4.00	60.00	231.00	171.00			8:47-10:09
I13	7/3/2019	13:10	27-30	45	4.35	0.00	165.00	165.00	831	-	Original design. 13:08-13:57
		13:59	24-27	50	3.29	165.00	330.00	165.00			13:58-14:39
		14:39	21-24	60	1.57	330.00	446.00	116.00			14:40-15:46
	7/8/2019	8:30	21-24	55	3.29	0.00	49.00	49.00			8:21-8:44
		9:02	18-21	30	4.52	49.00	214.00	165.00			8:44-9:58
		9:59	15-18	15	4.84	214.00	385.00	171.00			9:58-10:34
I14	7/3/2019	13:30	27-30	40	4.36	0.00	165.00	165.00	831	-	Original design. 13:26-14:05
		14:16	24-27	10	2.43	165.00	330.00	165.00			14:05-14:52
		14:54	21-24	20	4.59	330.00	503.00	173.00			14:52-15:46
	7/8/2019	8:30	18-21	60	2.55	0.00	157.00	157.00			8:19-9:55
		9:57	15-18	55	1.97	157.00	328.00	171.00			9:55-11:10
I15	7/8/2019	10:39	27-30	35	5.22	0.00	165.00	165.00	831	-	Original design. 10:35-11:09
		11:38	24-27	15	4.32	165.00	332.00	167.00			11:09-12:55
		13:38	21-24	50	3.60	332.00	499.00	167.00			12:55-14:14
		14:19	18-21	34	2.43	499.00	665.00	166.00			14:14-15:23
		15:26	15-18	5	4.86	665.00	831.00	166.00			15:23-16:08
I16	7/8/2019	11:04	27-30	30	4.38	0.00	165.00	165.00	831	-	Original design. 10:50-12:42
		12:58	24-27	65	1.39	165.00	332.00	167.00			12:42-14:04
		14:08	21-24	5	4.52	332.00	499.00	167.00			14:04-15:00
		15:41	18-21	45	4.79	499.00	665.00	166.00			15:00-15:46
		15:56	15-18	5	4.37	665.00	831.00	166.00			15:46-16:27
I17	7/8/2019	11:16	27-30	15	4.70	0.00	165.00	165.00	831	-	Original design. 11:05-12:54
		12:58	24-27	25	5.18	165.00	332.00	167.00			12:54-14:05
		14:08	21-24	25	4.41	332.00	499.00	167.00			14:05-15:01
		15:09	18-21	20	3.52	499.00	665.00	166.00			15:01-15:41
		15:56	15-18	5	4.77	665.00	831.00	166.00			15:41-16:27
I18	7/8/2019	11:31	27-30	55	3.76	0.00	200.50	200.50	909	-	Original design. Make-up volume for I4, **171 extra gallons.** 11:30-13:34
		13:40	24-27	25	4.31	200.50	401.00	200.50			13:34-14:33
		14:39	21-24	50	2.74	401.00	602.00	201.00			Nearby well at 5' dtw. Flow rate reduced. 14:33-15:44
		15:56	18-21	35	2.87	602.00	733.00	131.00			Continued reduced flow rate to mitigate well rise. 15:44-16:30
	7/9/2019	8:25	18-21	35	5.09	0.00	45.50	45.50			**Switch to revised design.** 8:20-8:38
		8:35	15-18	5	2.91	45.50	176.00	130.50			Slow to reduce nearby well rise. 8:38-9:27
I19	7/9/2019	7:59	27-30	35	4.96	0.00	110.00	110.00	550	-	Revised design. 7:55-8:37
		8:42	24-27	40	4.16	110.00	220.00	110.00			8:37-9:05
		9:25	21-24	10	5.07	220.00	330.00	110.00			9:05-9:40
		10:14	18-21	55	2.23	330.00	440.00	110.00			9:40-11:32
		11:37	15-18	5	4.17	440.00	550.00	110.00			11:32-13:10

S-MicroZVI Sulfidated Zero-Valent Iron

CRS CHEMICAL REDUCING SOLUTION

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I20	7/9/2019	8:08	27-30	35	4.34	0.00	110.00	110.00	550	-	Revised design. 8:07-8:40
		8:44	24-27	35	3.80	110.00	220.00	110.00			8:40-9:10
		9:24	21-24	40	3.56	220.00	330.00	110.00			9:10-9:43
		10:09	18-21	80	0.22	330.00	331.00	1.00			No flow. Pulling up to next interval. 9:43-10:10
		10:13	15-18	10	5.43	331.00	550.00	219.00			10:10-11:40
I21	7/9/2019	8:26	27-30	25	4.42	0.00	110.00	110.00	550	-	Revised design. 8:19-8:41
		8:45	24-27	20	4.42	110.00	220.00	110.00			8:41-9:09
		9:24	21-24	60	2.15	220.00	330.00	110.00			9:09-10:04
		10:21	18-21	60	1.86	330.00	440.00	110.00			10:04-11:32
		11:37	15-18	10	4.10	440.00	550.00	110.00			11:32-12:09
I22	7/9/2019	10:02	27-30	40	4.38	0.00	110.00	110.00	550	-	Revised design. 9:44-10:21
		10:37	24-27	20	2.20	110.00	220.00	110.00			10:21-12:09
		13:41	21-24	30	4.89	220.00	330.00	110.00			12:09-13:31
		13:54	18-21	32	2.55	330.00	440.00	110.00			13:31-14:12
		14:29	15-18	12	4.35	440.00	550.00	110.00			14:12-14:53
I23	7/9/2019	13:20	27-30	40	3.62	0.00	110.00	110.00	550	-	Revised design . 13:05-13:41
		13:54	24-27	20	4.80	110.00	220.00	110.00			13:41-14:12
		14:30	21-24	55	2.77	220.00	330.00	110.00			14:12-15:10
		15:26	18-21	15	4.36	330.00	440.00	110.00			15:10-15:43
		15:44	15-18	40	3.51	440.00	550.00	110.00			15:43-16:24
I24	7/9/2019	13:29	27-30	15	4.58	0.00	110.00	110.00	550	-	Revised design. 13:25-13:52
		13:54	24-27	40	4.12	110.00	220.00	110.00			13:52-14:30
		14:31	21-24	10	5.22	220.00	330.00	110.00			14:30-15:12
		15:26	18-21	15	5.42	330.00	440.00	110.00			15:12-15:44
		15:44	15-18	10	3.25	440.00	550.00	110.00			15:44-16:22
I25	7/9/2019	13:54	27-30	30	4.69	0.00	110.00	110.00	550	-	Revised design. 13:40-14:18
		14:31	24-27	25	5.05	110.00	220.00	110.00			14:18-14:47
		15:14	21-24	55	3.30	220.00	330.00	110.00			14:47-15:25
		15:32	18-21	55	2.43	330.00	440.00	110.00			15:25-16:30
		16:38	15-18	5	5.63	440.00	517.00	77.00			16:30-16:56
	7/10/2019	8:48	15-18	15	3.86	0.00	33.00	33.00			s 8:45-8:57
I26	7/9/2019	15:24	27-30	38	4.20	0.00	110.00	110.00	550	-	Revised design. 15:23-15:27
		16:38	24-27	30	4.36	110.00	207.00	97.00			15:27-15:56
	7/10/2019	8:48	24-27	35	2.48	0.00	13.00	13.00			8:45-8:54
		9:08	21-24	40	3.08	13.00	123.00	110.00			8:54-9:47
		10:14	18-21	35	3.90	123.00	233.00	110.00			9:47-10:55
		11:02	15-18	5	3.88	233.00	343.00	110.00			10:55-11:40
I27	7/10/2019	8:52	27-30	25	5.06	0.00	110.00	110.00	550	-	Revised design. 8:45-9:20
		9:28	24-27	15	4.84	110.00	220.00	110.00			9:20-9:41
		10:14	21-24	10	3.41	220.00	330.00	110.00			9:41-10:29
		10:40	18-21	15	4.42	330.00	440.00	110.00			10:29-10:55
		11:01	15-18	2	5.47	440.00	550.00	110.00			10:55-11:20
I28	7/10/2019	8:52	27-30	30	4.41	0.00	137.00	137.00	550	-	Revised design. Close to extraction well. Omitting 15-18' interval, volume redistributed evenly across 18'-30' interval. 8:45-9:25
		9:34	24-27	30	4.49	137.00	275.00	138.00			9:25-10:32
		10:51	21-24	55	3.53	275.00	412.00	137.00			10:32-11:41
		11:26	18-21	15	4.79	412.00	550.00	138.00			11:41-13:04
I29	7/10/2019	9:28	27-30	40	3.78	0.00	110.00	110.00	550	-	Revised design location. 9:25-10:20
		10:21	24-27	35	3.72	110.00	220.00	110.00			10:20-10:54
		11:02	21-24	35	3.00	220.00	330.00	110.00			10:54-11:40
		13:45	18-21	55	2.37	330.00	440.00	110.00			11:40-13:41
		13:57	15-18	5	4.85	440.00	550.00	110.00			13:41-14:17
I30	7/10/2019	12:55	27-30	5	5.32	0.00	110.00	110.00	550	-	Revised design. 11:54-13:25
		13:45	24-27	8	4.14	110.00	220.00	110.00			13:25-13:58
		14:05	21-24	40	3.96	220.00	330.00	110.00			13:58-14:28
		14:30	18-21	30	5.34	330.00	440.00	110.00			14:28-14:52
		15:10	15-18	10	5.18	440.00	550.00	110.00			14:52-15:17

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I31	7/10/2019	13:15	27-30	45	4.26	0.00	110.00	110.00	550	-	Revised design. 13:10-13:42
		13:45	24-27	26	4.26	110.00	220.00	110.00			13:42-14:12
		14:27	21-24	25	4.85	220.00	330.00	110.00			14:12-14:40
		15:17	18-21	15	4.10	330.00	440.00	110.00			14:40-15:14
		15:41	15-18	5	5.71	440.00	550.00	110.00			15:14-16:00
I32	7/10/2019	13:33	27-30	20	5.20	0.00	110.00	110.00	550	-	Revised design. 13:29-13:54
		13:56	24-27	30	3.72	110.00	220.00	110.00			13:54-14:27
		14:29	21-24	40	4.88	220.00	330.00	110.00			14:27-15:19
		15:34	18-21	25	5.71	330.00	440.00	110.00			15:19-15:47
		15:46	15-18	5	4.83	440.00	550.00	110.00			15:47-16:23
I33	7/10/2019	14:41	27-30	40	4.93	0.00	110.00	110.00	363	-	Revised design. Start 14:29-14:57
		15:34	24-27	35	4.39	110.00	220.00	110.00			14:57-15:34
		16:12	21-24	65	0.87	220.00	246.00	26.00			No flow. Moving to next interval. 15:34-15:58 (84 gallons short)
		16:13	18-21	75	0.00	246.00	253.00	7.00			No flow. Moving to next interval. 15:58-16:10 (103 gallons short)
		16:19	15-18	70	1.39	253.00	281.00	28.00			16:10-16:29
	7/11/2019	7:44	15-18	55	2.11	0.00	82.00	82.00			7:37-8:33 Putting omitted volume into locations I37 and I38.
I34	7/10/2019	15:39	27-30	10	5.38	0.00	132.00	132.00	663	-	Make-up volume for I2, **113 extra gallons.** Revised design. 15:36-15:57
		16:17	24-27	25	5.41	132.00	260.00	128.00			15:57-16:18
		16:46	21-24	10	6.49	260.00	263.00	3.00			16:18-16:30
	7/11/2019	7:45	21-24	22	5.40	0.00	134.50	134.50			7:37-8:12
		8:30	18-21	10	4.11	134.50	266.00	131.50			8:12-8:50
		9:15	15-18	15	4.08	266.00	400.00	134.00			8:50-9:15
I35	7/11/2019	7:51	27-30	40	5.78	0.00	110.00	110.00	550	-	Revised design. 7:50-8:21
		8:29	24-27	45	2.81	110.00	220.00	110.00			8:21-8:55
		9:05	21-24	45	2.68	220.00	330.00	110.00			8:55-9:41
		9:49	18-21	20	4.70	330.00	440.00	110.00			9:41-10:18
		10:22	15-18	10	5.33	440.00	550.00	110.00			10:18-10:44
I36	7/11/2019	8:25	27-30	35	4.39	0.00	120.00	120.00	600	-	Make-up volume for I8, **50 extra gallons.** Revised design. 8:01-8:25
		8:29	24-27	40	5.22	120.00	240.00	120.00			8:25-8:54
		9:05	21-24	25	4.90	240.00	360.00	120.00			8:54-9:26
		9:48	18-21	20	4.69	360.00	480.00	120.00			9:26-9:53
		10:01	15-18	5	5.12	480.00	600.00	120.00			9:53-10:29
I37	7/11/2019	8:55	27-30	30	5.32	0.00	110.00	110.00	644	-	Revised design. 8:51-9:15
		9:58	24-27	25	4.83	110.00	220.00	110.00			9:15-9:53
		10:02	21-24	55	2.25	220.00	372.00	152.00			9:53-10:42. **42 extra gal** from I33
		10:56	18-21	30	5.23	372.00	534.00	162.00			10:42-11:38. **52 extra gal** from I33
		13:03	15-18	35	4.17	534.00	644.00	110.00			11:38-13:10
I38	7/11/2019	9:57	27-30	35	4.35	0.00	110.00	110.00	644	-	Revised design. 9:56-10:26
		10:29	24-27	45	3.41	110.00	220.00	110.00			10:26-10:57
		10:56	21-24	70	0.71	220.00	252.00	32.00			10:57-11:30. Flow completely stopped.
		11:55	18-21	30	5.34	252.00	534.00	282.00			1:30-13:41. Extra volume from I33.
		14:21	15-18	25	5.19	534.00	644.00	110.00			13:41-14:12
I39	7/11/2019	10:54	27-30	15	6.10	0.00	182.00	182.00	727	-	Revised design. Close to extraction well. Omitting 15-18' interval, volume redistributed evenly across 18'-30' interval. Make-up volume for I3 and I6, **177 extra gallons.** 10:56-11:24
		11:37	24-27	30	4.02	182.00	364.00	182.00			11:24-13:18
		13:34	21-24	0	5.44	364.00	546.00	182.00			13:18-13:51
		15:05	18-21	5	6.18	546.00	727.00	181.00			13:51-14:55
I40	7/11/2019	11:27	27-30	40	4.28	0.00	132.00	132.00	649	-	Make-up volume for I7, **109 extra gallons**. Revised design. 11:32-12:02
		13:09	24-27	15	4.42	132.00	264.00	132.00			12:02-13:35
		13:59	21-24	55	2.18	264.00	396.00	132.00			13:35-15:16
		16:24	18-21	60	0.75	396.00	461.00	65.00			15:16-16:28
	7/12/2019	8:05	18-21	70	0.44	0.00	10.32	10.32			No flow. 7:55-8:05
		8:17	15-18	5	4.40	10.32	188.00	177.68			8:05-8:50

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I41	7/11/2019	13:52	27-30	40	5.88	0.00	110.00	110.00	550	-	Revised design. 13:48-14:11
		14:34	24-27	20	6.01	110.00	220.00	110.00			14:11-14:34
		14:34	21-24	55	4.90	220.00	330.00	110.00			14:34-14:55
		15:11	18-21	35	4.48	330.00	440.00	110.00			14:55-15:20
		15:23	15-18	15	5.22	440.00	550.00	110.00			15:20-15:55
I42	7/11/2019	15:13	27-30	38	4.41	0.00	132.00	132.00	659	-	Make-up volume for I5, **109 extra gallons**. Revised design. 15:12-15:55
		15:55	24-27	42	4.94	132.00	264.00	132.00			15:55-16:22
		16:22	21-24	55	4.71	264.00	282.00	18.00			Surfacing up borehole. Cannot stop flow. Abandoning, filling with bentonite, will return with clean tooling down same hole tomorrow. 16:22-16:25
	7/12/2019	8:52	21-24	50	2.38	0.00	114.00	114.00			7:49-8:52
		9:07	18-21	45	3.02	114.00	246.00	132.00			8:52-9:46
		9:58	15-18	30	5.16	246.00	377.00	131.00			9:46-10:18
I43	7/11/2019	15:51	27-30	40	5.33	0.00	110.00	110.00	550	-	Revised design. 15:51-16:15
		16:22	24-27	20	6.41	110.00	220.00	110.00			16:15-16:37
		16:41	21-24	25	5.83	220.00	330.00	110.00			16:37-16:56
		17:00	18-21	20	7.49	330.00	440.00	110.00			16:56-17:08
		17:08	15-18	15	6.21	440.00	460.00	20.00			17:08-17:13
	7/12/2019	8:08	15-18	10	5.53	0.00	90.00	90.00			7:49-8:22
I44	7/12/2019	8:16	27-30	25	4.49	0.00	110.00	110.00	550	-	Revised design. 8:05-8:38
		8:54	24-27	40	5.51	110.00	220.00	110.00			8:38-9:06
		9:09	21-24	55	2.09	220.00	330.00	110.00			9:06-9:49
		9:57	18-21	2	5.40	330.00	440.00	110.00			9:49-10:12
		10:27	15-18	2	4.94	440.00	550.00	110.00			10:12-10:35
I45	7/12/2019	8:34	27-30	15	4.98	0.00	110.00	110.00	550	-	Revised design. 8:26-8:51
		9:07	24-27	15	5.02	110.00	220.00	110.00			8:51-9:14
		9:16	21-24	45	3.94	220.00	330.00	110.00			9:14-9:47
		9:57	18-21	50	4.31	330.00	440.00	110.00			9:47-10:18
		10:27	15-18	2	5.44	440.00	550.00	110.00			10:18-10:50
I46	7/12/2019	9:02	27-30	35	4.74	0.00	110.00	110.00	550	-	Revised design. 8:55-9:23
		9:26	24-27	40	5.25	110.00	220.00	110.00			9:23-9:45
		9:57	21-24	50	3.22	220.00	330.00	110.00			9:45-10:15
		10:27	18-21	40	5.12	330.00	440.00	110.00			10:15-10:51
		11:11	15-18	15	4.87	440.00	550.00	110.00			10:51-11:04
I47	7/12/2019	10:37	27-30	38	4.93	0.00	110.00	110.00	550	-	Revised design. 10:35-11:04
		11:10	24-27	45	3.96	110.00	220.00	110.00			11:04-11:32
		11:31	21-24	35	4.59	220.00	330.00	110.00			11:32-11:59
		13:34	18-21	15	4.29	330.00	440.00	110.00			12:51-13:35
		13:39	15-18	20	4.18	440.00	550.00	110.00			13:35-14:03
I48	7/12/2019	11:04	27-30	22	5.44	0.00	110.00	110.00	550	-	Revised design. 11:04-11:31
		11:49	24-27	35	3.97	110.00	220.00	110.00			11:31-11:57
		11:57	21-24	2	6.60	220.00	330.00	110.00			12:49-13:10
		13:33	18-21	2	5.71	330.00	440.00	110.00			13:10-13:33
		13:41	15-18	5	5.12	440.00	550.00	110.00			13:33-13:54
I49	7/12/2019	11:34	27-30	35	4.23	0.00	110.00	110.00	550	-	Revised design. 11:29-12:01
		13:08	24-27	20	3.90	110.00	220.00	110.00			12:55-13:29
		13:41	21-24	5	4.13	220.00	330.00	110.00			13:29-13:57
		14:17	18-21	50	3.84	330.00	440.00	110.00			13:57-14:22
		14:43	15-18	45	3.76	440.00	550.00	110.00			14:22-15:20
I50	7/12/2019	11:46	27-30	30	5.56	0.00	110.00	110.00	550	-	Revised design. 11:43-13:10
		13:35	24-27	45	3.15	110.00	220.00	110.00			13:10-13:57
		14:03	21-24	65	1.08	220.00	246.00	26.00			Stalled out. Pulling to next interval. 13:57-14:14
		14:17	18-21	35	3.94	246.00	440.00	194.00			14:14-15:15. Extra volume from previous interval.
		15:39	15-18	5	5.03	440.00	550.00	110.00			15:15-15:41

S-MicroZVI Sulfidated Zero-Valent Iron | CRS CHEMICAL REDUCING SOLUTION

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I51	7/12/2019	13:58	27-30	20	5.74	0.00	110.00	110.00	550	-	Revised design. 13:54-14:24
		14:28	24-27	20	5.92	110.00	220.00	110.00			14:24-14:48
		14:53	21-24	45	3.85	220.00	330.00	110.00			14:48-15:12
		15:47	18-21	15	5.32	330.00	391.00	61.00			15:12-15:50
	7/15/2019	8:14	18-21	10	3.92	0.00	49.00	49.00			8:01-8:40
		8:56	15-18	5	4.17	49.00	159.00	110.00			8:40-9:12
I52	7/12/2019	14:17	27-30	35	5.52	0.00	110.00	110.00	550	-	Revised design. 14:11-14:38
		14:43	24-27	62	2.92	110.00	220.00	110.00			14:38-15:16
		15:38	21-24	45	4.38	220.00	330.00	110.00			15:16-15:45
		15:48	18-21	40	4.85	330.00	392.00	62.00			15:45-15:50
	7/15/2019	8:14	18-21	55	2.46	0.00	47.00	47.00			8:01-8:53
		9:06	15-18	20	3.40	47.00	158.00	111.00			8:53-9:29
I53	7/15/2019	8:35	27-30	25	4.32	0.00	110.00	110.00	158	-	Revised design. 8:22-8:56
		9:12	24-27	60	2.58	110.00	158.00	48.00			No flow. Pulling to next interval. 8:56-9:38
		10:11	21-24	80	-	158.00	158.00	0.00			Still no flow. 9:38-9:59. Pulling tooling to inspect screen. Screen clear. Assuming formation too tight. Redistributing flow to nearby locations.
I54	7/15/2019	9:07	27-30	65	1.22	0.00	110.00	110.00	550	-	Revised design. 8:49-9:50
		9:55	24-27	60	1.01	110.00	147.00	37.00			Completely stalled out. Pulling to next interval. 9:50-10:36
		10:42	21-24	70	1.97	147.00	238.00	91.00			Stalled out. Pulling to next interval. 10:36-11:28
		11:35	18-21	75	1.02	238.00	244.00	6.00			No good flow. Pulled up. 11:28-11:37
		11:39	15-18	80	2.02	244.00	550.00	306.00			11:37-14:29. Screen broken upon removal. Pressure due to tool failure.
I55	7/15/2019	9:49	27-30	30	3.95	0.00	110.00	110.00	550	-	Revised design. 9:33-10:04
		10:30	24-27	70	2.37	110.00	220.00	110.00			10:04-10:56
		11:20	21-24	65	2.92	220.00	330.00	110.00			10:56-11:31
		11:35	18-21	70	3.05	330.00	440.00	110.00			11:31-13:01
		13:22	15-18	10	4.96	440.00	550.00	110.00			13:01-13:27
I56	7/15/2019	10:12	27-30	15	4.99	0.00	110.00	110.00	550	-	Revised design. 10:07-10:31
		10:42	24-27	15	4.38	110.00	220.00	110.00			10:31-11:10
		11:18	21-24	5	3.63	220.00	330.00	110.00			11:10-11:41
		11:46	18-21	15	5.39	330.00	440.00	110.00			11:41-12:46
		12:50	15-18	2	4.62	440.00	550.00	110.00			12:46-13:14
I57	7/15/2019	10:41	27-30	32	4.74	0.00	110.00	110.00	550	-	Revised design. 10:32-11:00
		11:13	24-27	75	2.81	110.00	220.00	110.00			11:00-11:44
		11:47	21-24	50	3.66	220.00	330.00	110.00			11:44-13:26
		13:47	18-21	10	5.71	330.00	440.00	110.00			13:26-13:51
		14:01	15-18	18	5.00	440.00	550.00	110.00			13:51-14:14
I58	7/15/2019	13:17	27-30	20	6.14	0.00	110.00	110.00	550	-	Revised design. 13:14-13:36
		13:47	24-27	15	4.16	110.00	220.00	110.00			13:36-14:09
		14:22	21-24	18	4.62	220.00	330.00	110.00			14:09-14:43
		14:45	18-21	5	6.60	330.00	440.00	110.00			14:43-15:12
		15:18	15-18	2	5.80	440.00	550.00	110.00			15:12-15:28
I59	7/15/2019	13:46	27-30	40	5.54	0.00	110.00	110.00	928	-	Make-up volume from I53. Revised design. 13:35-13:59
		14:12	24-27	30	3.96	110.00	268.00	158.00			48 extra gal. 13:59-14:37
		14:45	21-24	45	3.14	268.00	488.00	220.00			110 extra gal. 14:37-15:40
		16:04	18-21	20	6.56	488.00	708.00	220.00			110 extra gal. 15:40-16:10
		16:20	15-18	10	6.32	708.00	798.00	90.00			110 extra gal. 16:10-16:24
	7/16/2019	7:46	15-18	5	6.76	0.00	130.00	130.00			7:44-8:02
I60	7/15/2019	14:06	27-30	40	5.32	0.00	110.00	110.00	550	-	Revised design. 13:51-14:25
		14:46	24-27	35	3.73	110.00	220.00	110.00			14:25-15:15
		15:18	21-24	55	2.78	220.00	330.00	110.00			15:15-15:42
		16:04	18-21	35	3.51	330.00	355.00	25.00			15:42-16:24
	7/16/2019	7:47	18-21	2	3.52	0.00	85.00	85.00			7:44-8:14
		8:19	15-18	2	5.82	85.00	195.00	110.00			8:14-8:35

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I61	7/15/2019	14:44	27-30	40	5.02	0.00	110.00	110.00	550	-	Revised design. 14:33-15:04
		15:12	24-27	50	3.46	110.00	220.00	110.00			15:04-15:40
		16:03	21-24	45	3.40	220.00	246.00	26.00			15:40-16:24
	7/16/2019	7:47	21-24	20	3.32	0.00	84.00	84.00			7:44-8:13
		8:19	18-21	40	3.93	84.00	194.00	110.00			8:13-8:50
		9:02	15-18	10	5.24	194.00	304.00	110.00			8:50-9:14
I62	7/15/2019	15:43	27-30	5	4.46	0.00	110.00	110.00	550	-	Revised design. 15:29-15:53
		16:03	24-27	50	2.19	110.00	176.00	66.00			15:53-16:24
	7/16/2019	7:47	24-27	38	2.85	0.00	44.00	44.00			7:44-8:01
		8:13	21-24	60	3.42	44.00	154.00	110.00			8:01-8:54
		9:03	18-21	35	5.71	154.00	264.00	110.00			8:54-9:22
		9:37	15-18	12	5.20	264.00	374.00	110.00			9:22-9:45
I63	7/16/2019	8:08	27-30	10	6.63	0.00	110.00	110.00	550	-	Revised design. 8:07-8:38
		9:02	24-27	60	2.13	110.00	220.00	110.00			8:38-9:36
		11:08	21-24	80	0.50	220.00	260.00	40.00			Stalled out. Pulling to next interval. 9:36-10:55
		11:47	18-21	20	6.13	260.00	440.00	180.00			10:55-11:48. Extra volume from previous interval.
		11:56	15-18	10	5.58	440.00	550.00	110.00			11:48-12:09
I64	7/16/2019	8:41	27-30	45	4.95	0.00	110.00	110.00	550	-	Revised design. 8:39-9:03
		9:22	24-27	30	4.72	110.00	220.00	110.00			9:03-9:47
		9:59	21-24	10	6.56	220.00	330.00	110.00			9:47-10:19
		10:30	18-21	25	5.93	330.00	440.00	110.00			10:19-10:42
		10:44	15-18	10	6.72	440.00	550.00	110.00			10:42-11:01
I65	7/16/2019	9:23	27-30	42	5.10	0.00	110.00	110.00	550	-	Revised design. 9:18-9:55
		10:00	24-27	50	4.32	110.00	220.00	110.00			9:55-10:24
		10:31	21-24	65	0.87	220.00	224.00	4.00			No flow. Pulling to next interval. 10:24-10:35
		11:11	18-21	25	4.18	224.00	440.00	216.00			10:35-11:50. Extra volume from previous interval.
		11:57	15-18	15	4.97	440.00	550.00	110.00			11:50-12:11
I66	7/16/2019	10:00	27-30	45	3.79	0.00	110.00	110.00	550	-	Revised design. 9:46-10:28
		10:59	24-27	55	2.95	110.00	220.00	110.00			10:28-10:50
		11:11	21-24	65	2.22	220.00	330.00	110.00			10:50-11:52
		13:29	18-21	20	6.01	330.00	440.00	110.00			11:52-13:29
		13:34	15-18	15	4.48	440.00	550.00	110.00			13:29-13:52
I67	7/16/2019	11:11	27-30	25	5.45	0.00	110.00	110.00	550	-	Revised design. 11:03-11:21
		12:02	24-27	45	3.74	110.00	220.00	110.00			11:21-11:58
		12:07	21-24	15	4.39	220.00	330.00	110.00			11:58-13:24
		13:34	18-21	20	3.60	330.00	440.00	110.00			13:24-14:15
		14:26	15-18	5	6.30	440.00	550.00	110.00			14:15-14:34
I68	7/16/2019	13:26	27-30	45	5.87	0.00	110.00	110.00	550	-	Revised design. 13:09-13:43
		13:51	24-27	70	2.34	110.00	188.00	78.00			Stalled out. Pulling to next interval. 13:43-14:50
		15:12	21-24	15	4.39	188.00	330.00	142.00			14:50-15:38
		15:42	18-21	10	5.39	330.00	440.00	110.00			15:38-16:02
		16:17	15-18	35	5.57	440.00	550.00	110.00			16:02-16:23
I69	7/16/2019	13:27	27-30	25	6.48	0.00	110.00	110.00	550	-	Revised design. 13:22-13:41
		13:52	24-27	15	4.52	110.00	220.00	110.00			13:41-14:21
		15:06	21-24	25	5.36	220.00	330.00	110.00			14:21-15:06
		15:11	18-21	15	5.38	330.00	440.00	110.00			15:06-15:32
		15:39	15-18	2	5.65	440.00	550.00	110.00			15:32-15:54
I70	7/16/2019	14:17	27-30	45	4.10	0.00	110.00	110.00	550	-	Revised design. 13:59-14:44
		14:54	24-27	85	0.42	110.00	126.00	16.00			No flow at all. Pulling to next interval. 14:44-14:55
		15:13	21-24	48	3.52	126.00	330.00	204.00			14:55-15:58
		16:05	18-21	20	6.39	330.00	440.00	110.00			15:58-16:17
		16:30	15-18	15	4.97	440.00	456.00	16.00			16:17-16:31
	7/17/2019	8:00	15-18	5	4.45	0.00	94.00	94.00			7:49-8:09

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I71	7/16/2019	14:44	27-30	50	2.91	0.00	110.00	110.00	550	-	Revised design. 14:36-15:09
		15:13	24-27	45	4.92	110.00	220.00	110.00			15:09-15:33
		15:34	21-24	75	1.47	220.00	261.00	41.00			15:33-16:31
	7/17/2019	8:00	21-24	75	2.13	0.00	69.00	69.00			7:49-8:10
		8:16	18-21	40	3.68	69.00	179.00	110.00			8:10-8:42
		8:45	15-18	35	4.61	179.00	289.00	110.00			8:42-9:07
I72	7/16/2019	16:03	27-30	20	5.44	0.00	110.00	110.00	550	-	Revised design. 15:55-16:17
		16:19	24-27	25	5.32	110.00	130.00	20.00			16:17-16:31
	7/17/2019	8:00	24-27	20	5.02	0.00	94.00	94.00			7:49-8:04
		8:17	21-24	24	4.74	94.00	204.00	110.00			8:04-8:43
		8:47	18-21	20	5.26	204.00	314.00	110.00			8:43-8:59
		9:02	15-18	22	5.98	314.00	420.00	106.00			8:59-9:13
I73	7/17/2019	8:01	27-30	40	4.68	0.00	110.00	110.00	550	-	Revised design. 7:58-8:22
		8:25	24-27	60	1.73	110.00	220.00	110.00			8:22-9:28
		9:47	21-24	62	2.23	220.00	330.00	110.00			9:28-10:13
		10:15	18-21	25	5.98	330.00	440.00	110.00			10:13-10:34
		10:43	15-18	30	6.06	440.00	550.00	110.00			10:34-10:53
I74	7/17/2019	8:30	27-30	25	5.38	0.00	133.00	133.00	666	-	Make up volume for I1, **116 extra gallons.** Revised design. 8:13-8:36
		9:02	24-27	40	4.10	133.00	266.00	133.00			8:36-9:10
		9:10	21-24	20	5.58	266.00	399.00	133.00			9:10-9:39
		9:47	18-21	35	5.27	399.00	533.00	134.00			9:39-10:04
		10:08	15-18	0	6.44	533.00	666.00	133.00			10:04-10:32
I75	7/17/2019	9:21	27-30	35	4.34	0.00	110.00	110.00	550	-	Revised design. 9:09-9:38
		9:47	24-27	30	4.77	110.00	220.00	110.00			9:38-10:02
		10:04	21-24	45	4.16	220.00	330.00	110.00			10:02-10:48
		10:54	18-21	40	5.22	330.00	440.00	110.00			10:48-11:11
		11:19	15-18	2	4.50	440.00	550.00	110.00			11:11-11:31
I76	7/17/2019	9:27	27-30	34	5.27	0.00	110.00	110.00	550	-	Revised design. 9:25-9:46
		9:48	24-27	28	4.62	110.00	220.00	110.00			9:46-10:10
		10:17	21-24	30	3.98	220.00	330.00	110.00			10:10-10:46
		10:55	18-21	35	4.42	330.00	440.00	110.00			10:46-11:10
		11:19	15-18	10	6.04	440.00	550.00	110.00			11:10-11:35
I77	7/17/2019	10:34	27-30	20	4.96	0.00	110.00	110.00	550	-	Revised design. 10:33-10:54
		10:55	24-27	60	3.02	110.00	220.00	110.00			10:54-11:33
		11:44	21-24	55	3.04	220.00	330.00	110.00			11:33-13:01
		13:09	18-21	5	4.31	330.00	382.00	52.00			13:01-13:14. Incomplete. Will return to later today. Starting last location of source so we don't end up with only one location at the end of the day.
		14:43	18-21	25	5.24	0.00	58.00	58.00			14:43-15:17
		15:18	15-18	10	4.22	58.00	168.00	110.00			15:17-15:50
I78	7/17/2019	11:10	27-30	30	3.68	0.00	110.00	110.00	550	-	Revised design. 10:57-11:34
		11:44	24-27	30	3.93	110.00	220.00	110.00			11:34-11:59
		13:10	21-24	60	1.60	220.00	330.00	110.00			11:59-13:58
		14:04	18-21	52	4.12	330.00	440.00	110.00			13:58-14:26
		15:18	15-18	5	4.15	440.00	550.00	110.00			14:25-15:31
I79	7/17/2019	11:44	27-30	35	5.83	0.00	110.00	110.00	550	-	Revised design. 11:32-11:53
		13:09	24-27	30	4.38	110.00	220.00	110.00			11:53-13:23
		13:25	21-24	35	5.38	220.00	330.00	110.00			13:23-13:57
		14:04	18-21	25	5.70	330.00	440.00	110.00			13:57-14:16
		14:27	15-18	10	580.00	440.00	550.00	110.00			14:16-14:43

PES Environmental-SMI Mountain View

S-MicroZVI and CRS Injection Summary Log

Source Grid Area

Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Adjusted Total	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval			
I80	7/17/2019	13:08	27-30	28	4.41	0.00	110.00	110.00	550	-	Revised design. 11:55-13:18
		13:23	24-27	60	3.70	110.00	220.00	110.00			13:18-13:50
		13:51	21-24	40	5.69	220.00	330.00	110.00			13:50-14:29
		14:44	18-21	15	5.81	330.00	440.00	110.00			14:29-15:01
		15:18	15-18	2	4.06	440.00	550.00	110.00			15:01-15:47
I81	7/17/2019	13:19	27-30	25	6.25	0.00	110.00	110.00	550	-	Revised design. 13:15-13:35
		13:39	24-27	40	6.14	110.00	220.00	110.00			13:35-14:02
		14:05	21-24	52	2.45	220.00	330.00	110.00			14:02-14:30
		14:44	18-21	10	5.79	330.00	440.00	110.00			14:30-14:59
		15:18	15-18	2	4.38	440.00	550.00	110.00			14:59-15:45
									Total Gallons:		
									50,327		

APPENDIX B: Barriers Injection Logs

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area
Table 2

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I82	7/18/2019	9:45	27-30	25	4.52	0.00	150.00	150.00	750	Starting with S-MicroZVI. 9:31-10:23
		10:34	24-27	28	4.71	150.00	300.00	150.00		10:23-11:01
		11:06	21-24	40	5.62	300.00	450.00	150.00		11:01-11:38
		11:52	18-21	55	3.62	450.00	600.00	150.00		11:38-13:40
		13:42	15-18	25	6.37	600.00	750.00	150.00		13:40-14:04
I83	7/18/2019	9:55	27-30	25	4.59	0.00	150.00	150.00	750	Starting with S-MicroZVI. 9:52-10:21
		10:34	24-27	24	4.74	150.00	300.00	150.00		10:21-11:06
		11:07	21-24	45	3.22	300.00	450.00	150.00		11:06-13:34
		13:36	18-21	50	3.41	450.00	600.00	150.00		13:34-14:22
		14:29	15-18	5	4.92	600.00	750.00	150.00		14:22-15:13
I84	7/18/2019	10:12	27-30	28	4.70	0.00	150.00	150.00	750	Starting with S-MicroZVI. 10:06-10:59
		11:08	24-27	25	3.96	150.00	300.00	150.00		10:59-11:38
		11:54	21-24	15	4.86	300.00	450.00	150.00		11:38-13:53
		13:35	18-21	40	3.52	450.00	600.00	150.00		13:53-14:16
		14:23	15-18	30	4.76	600.00	750.00	150.00		14:16-14:55
I85	7/18/2019	10:33	27-30	30	4.02	0.00	150.00	150.00	750	Starting with S-MicroZVI. 10:16-11:02
		11:08	24-27	45	2.35	150.00	300.00	150.00		11:02-11:50
		11:53	21-24	55	4.80	300.00	450.00	150.00		11:50-13:59
		14:32	18-21	26	5.09	450.00	600.00	150.00		13:59-14:37
		14:40	15-18	10	4.38	600.00	750.00	150.00		14:37-15:16
I86	7/18/2019	14:28	27-30	25	5.39	0.00	150.00	150.00	750	Starting with S-MicroZVI. 14:20-15:02
		15:30	24-27	30	6.28	150.00	300.00	150.00		15:02-15:43
		15:53	21-24	50	2.64	300.00	450.00	150.00		Switch to AquaZVI at 403 gal. 15:43-16:25
		16:28	18-21	10	4.31	450.00	468.00	18.00		16:25-16:47
	7/19/2019	7:52	18-21	10	4.34	0.00	132.00	132.00		7:48-8:26
		8:42	15-18	5	5.01	132.00	282.00	150.00		8:26-9:05
I87	7/18/2019	15:14	27-30	35	5.42	0.00	150.00	150.00	663	Starting with S-MicroZVI. 15:01-15:32
		15:53	24-27	22	5.29	150.00	300.00	150.00		Switch to AquaZVI at 250 gal. 15:32-16:14
		16:27	21-24	65	2.70	300.00	367.00	67.00		16:14-16:47
	7/19/2019	7:53	21-24	18	4.73	0.00	83.00	83.00		7:48-8:34
		8:40	18-21	58	2.46	83.00	233.00	150.00		8:34-9:42
		9:56	15-18	30	6.32	233.00	296.00	63.00		Surfacing up borehole. Couldn't stop. Omitted volume injected in I92. 9:42-10:07
I88	7/18/2019	15:29	27-30	35	5.34	0.00	150.00	150.00	750	Starting with S-MicroZVI. 15:22-15:50
		15:56	24-27	35	5.24	150.00	300.00	150.00		Switch to AquaZVI at 170 gal. 15:50-16:29
		16:29	21-24	65	2.60	300.00	320.00	20.00		16:29-16:47
	7/19/2019	7:53	21-24	65	1.98	0.00	130.00	130.00		7:48-8:37
		8:41	18-21	65	2.15	130.00	280.00	150.00		8:37-9:29
		9:39	15-18	35	3.64	280.00	430.00	150.00		9:29-10:14
I89	7/18/2019	15:54	27-30	30	6.33	0.00	150.00	150.00	750	AquaZVI from beginning (Same for all subsequent locations). 15:31-16:09
		16:16	24-27	28	4.70	150.00	195.00	45.00		16:09-16:47
	7/19/2019	7:53	24-27	40	4.76	0.00	105.00	105.00		7:48-8:24
		8:41	21-24	60	4.20	105.00	255.00	150.00		8:24-9:07
		9:52	18-21	20	5.63	255.00	405.00	150.00		9:07-9:48
		9:53	15-18	10	5.05	405.00	555.00	150.00		9:48-10:20
I90	7/19/2019	9:06	27-30	60	3.28	0.00	150.00	150.00	750	9:06-9:35
		9:41	24-27	50	3.83	150.00	300.00	150.00		9:35-10:50
		10:55	21-24	35	4.86	300.00	450.00	150.00		10:50-11:43
		12:44	18-21	5	4.44	450.00	600.00	150.00		11:43-13:18
		13:21	15-18	2	5.89	600.00	750.00	150.00		13:18-13:49

S-MicroZVI Sulfidated Zero-Valent Iron AquaZVI

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area

Table 2

CRS CHEMICAL REDUCING SOLUTION

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I91	7/19/2019	10:28	27-30	32	5.61	0.00	150.00	150.00	750	10:09-10:58
		11:10	24-27	24	4.28	150.00	300.00	150.00		10:58-11:31
		12:44	21-24	55	2.09	300.00	450.00	150.00		11:31-13:15
		13:17	18-21	30	4.71	450.00	600.00	150.00		13:15-13:58
		14:44	15-18	10	5.39	600.00	750.00	150.00		13:58-14:42
I92	7/19/2019	10:28	27-30	40	5.32	0.00	150.00	150.00	837	10:21-11:01
		11:10	24-27	30	4.27	150.00	300.00	150.00		11:01-11:38
		12:44	21-24	40	3.29	300.00	450.00	150.00		11:38-13:02
		13:08	18-21	22	5.62	450.00	600.00	150.00		13:02-13:52
		13:54	15-18	10	4.87	600.00	837.00	237.00		Extra volume from 87. 13:52-15-12
I93	7/19/2019	10:44	27-30	35	5.78	0.00	150.00	150.00	750	10:38-11:27
		12:45	24-27	35	3.75	150.00	300.00	150.00		11:27-13:06
		13:08	21-24	65	1.99	300.00	450.00	150.00		13:06-13:55
		14:51	18-21	45	3.96	450.00	600.00	150.00		13:55-14:52
		15:39	15-18	2	5.03	600.00	750.00	150.00		14:52-15:43
I94	7/19/2019	13:52	27-30	30	4.45	0.00	150.00	150.00	750	13:52-14:28
		15:14	24-27	60	1.89	150.00	300.00	150.00		14:28-15:52
		15:55	21-24	55	4.01	300.00	330.00	30.00		15:52-16:05
	7/22/2019	8:25	21-24	25	6.28	0.00	120.00	120.00		8:09-8:40
		9:18	18-21	15	5.70	120.00	270.00	150.00		8:40-9:37
		9:43	15-18	5	5.66	270.00	420.00	150.00		9:37-10:09
I95	7/19/2019	14:48	27-30	32	4.64	0.00	150.00	150.00	750	14:46-15:29
		16:00	24-27	45	4.18	150.00	287.00	137.00		15:29-16:05
	7/22/2019	8:10	24-27	5	2.02	0.00	13.00	13.00		8:09-8:13
		8:26	21-24	22	5.32	13.00	163.00	150.00		8:13-9:35
		9:39	18-21	22	4.31	163.00	313.00	150.00		9:35-10:23
		10:24	15-18	2	4.70	0.00	150.00	150.00		10:23-11:01
I96	7/19/2019	15:14	27-30	25	4.28	0.00	133.00	133.00	750	15:12-16:05
	7/22/2019	8:10	27-30	30	2.31	0.00	17.00	17.00		8:09-8:16
		8:26	24-27	25	4.68	17.00	167.00	150.00		8:16-9:29
		9:38	21-24	55	3.99	167.00	317.00	150.00		9:29-10:22
		10:33	18-21	60	1.64	317.00	467.00	150.00		10:22-11:40
		11:42	15-18	40	4.38	467.00	617.00	150.00		11:40-13:02
I97	7/22/2019	9:17	27-30	40	5.68	0.00	150.00	150.00	750	9:02-9:47
		9:57	24-27	35	3.96	150.00	300.00	150.00		9:47-10:44
		10:54	21-24	15	4.09	300.00	450.00	150.00		10:44-11:16
		11:19	18-21	12	4.68	450.00	600.00	150.00		11:16-11:58
		13:13	15-18	18	4.34	600.00	750.00	150.00		12:55-13:32
I98	7/22/2019	10:25	27-30	28	5.96	0.00	150.00	150.00	750	10:14-10:45
		10:50	24-27	25	4.02	150.00	300.00	150.00		10:45-11:17
		11:19	21-24	45	3.82	300.00	450.00	150.00		11:17-11:58
		13:13	18-21	2	4.36	450.00	600.00	150.00		12:55-13:42
		13:48	15-18	2	4.14	600.00	750.00	150.00		13:42-14:30
I99	7/22/2019	11:12	27-30	75	2.08	0.00	88.00	88.00	750	Stalled out. Pulling to next interval. 11:05-11:38
		11:44	24-27	72	2.88	88.00	300.00	212.00		11:38-14:12
		14:16	21-24	70	2.61	300.00	450.00	150.00		14:12-15:04
		15:10	18-21	72	3.05	450.00	600.00	150.00		15:04-16:01
		16:02	15-18	70	3.11	600.00	750.00	150.00		16:01-16:45

S-MicroZVI Sulfidated Zero-Valent Iron AquaZVI

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area

Table 2

CRS CHEMICAL REDUCING SOLUTION

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I100	7/22/2019	13:10	27-30	32	4.63	0.00	150.00	150.00	750	13:09-13:40
		13:47	24-27	15	4.40	150.00	300.00	150.00		13:40-14:32
		14:34	21-24	20	4.38	300.00	450.00	150.00		14:32-15:01
		15:10	18-21	10	5.27	450.00	600.00	150.00		15:01-15:42
		15:53	15-18	25	6.05	600.00	750.00	150.00		15:42-16:01
I101	7/22/2019	13:38	27-30	40	5.38	0.00	150.00	150.00	750	13:36-14:13
		14:31	24-27	26	4.27	150.00	300.00	150.00		14:13-14:47
		14:47	21-24	42	3.76	300.00	450.00	150.00		14:47-15:43
		15:52	18-21	20	4.75	450.00	600.00	150.00		15:43-16:07
		16:16	15-18	15	5.03	600.00	750.00	150.00		16:07-16:50
I102	7/22/2019	14:34	27-30	32	4.68	0.00	150.00	150.00	750	14:31-15:02
		15:10	24-27	25	5.64	150.00	300.00	150.00		15:02-15:46
		15:52	21-24	22	4.98	300.00	450.00	150.00		15:46-16:08
		16:13	18-21	40	5.82	450.00	600.00	150.00		16:08-16:36
		16:40	15-18	35	6.15	600.00	600.00	0.00		16:36-16:51
	7/23/2019	7:55	15-18	5	4.35	0.00	150.00	150.00		7:50-8:24
I103	7/22/2019	16:02	27-30	30	4.91	0.00	150.00	150.00	750	16:03-16:32
		16:40	24-27	20	4.82	150.00	150.00	0.00		16:32-16:51
	7/23/2019	7:56	24-27	15	4.01	0.00	150.00	150.00		7:50-8:44
		9:02	21-24	50	3.00	150.00	300.00	150.00		8:44-9:28
		9:49	18-21	35	5.42	300.00	450.00	150.00		9:28-9:55
		10:06	15-18	2	6.20	450.00	600.00	150.00		9:55-10:21
I104	7/23/2019	7:56	27-30	40	5.35	0.00	150.00	150.00	750	7:58-8:28
		8:48	24-27	45	6.03	150.00	300.00	150.00		8:28-9:01
		9:08	21-24	65	3.05	300.00	450.00	150.00		9:01-9:58
		10:13	18-21	20	4.48	450.00	600.00	150.00		9:58-10:34
		10:37	15-18	16	4.68	600.00	750.00	150.00		10:34-11:04
I105	7/23/2019	8:28	27-30	28	4.78	0.00	150.00	150.00	750	8:09-8:41
		8:48	24-27	46	2.29	150.00	300.00	150.00		8:41-9:18
		9:28	21-24	65	2.68	300.00	450.00	150.00		9:18-10:16
		10:14	18-21	60	3.07	450.00	600.00	150.00		10:16-11:22
		11:27	15-18	25	6.54	600.00	750.00	150.00		11:22-11:49
I106	7/23/2019	8:28	27-30	20	5.06	0.00	150.00	150.00	750	8:26-9:02
		9:08	24-27	10	5.51	150.00	300.00	150.00		9:02-9:59
		10:14	21-24	70	1.08	300.00	345.00	45.00		Too tight. Pulled up 1' to achieve flow. 9:59-10:29
		10:32	20-23	65	1.55	345.00	473.00	128.00		Very low flow. Pulling up to next regular interval. 10:29-11:59
		12:09	18-21	50	4.89	473.00	600.00	127.00		11:59-13:24
		13:30	15-18	5	4.34	600.00	750.00	150.00		13:24-14:05
I107	7/23/2019	10:44	27-30	25	4.17	0.00	150.00	150.00	750	10:35-11:24
		11:31	24-27	14	4.18	150.00	300.00	150.00		11:24-12:06
		12:09	21-24	30	5.27	300.00	450.00	150.00		12:06-13:32
		13:33	18-21	5	4.39	450.00	600.00	150.00		13:32-14:36
		14:42	15-18	4	4.27	600.00	750.00	150.00		14:36-15:00
I108	7/23/2019	11:07	27-30	40	4.92	0.00	150.00	150.00	750	11:05-11:55
		12:08	24-27	74	1.65	150.00	236.00	86.00		Stalled out. Pulling to next interval. 11:55-13:30
		13:32	21-24	75	2.36	236.00	401.00	165.00		Flow rate wandering up and down. Possibly gravels moving? 13:30-14:39
		14:37	18-21	55	4.18	401.00	600.00	199.00		14:39-15:19
		15:20	15-18	24	5.13	600.00	750.00	150.00		15:19-15:54

S-MicroZVI Sulfidated Zero-Valent Iron AquaZVI

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area
Table 2

CRS CHEMICAL REDUCING SOLUTION

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I109	7/23/2019	11:55	27-30	35	5.92	0.00	150.00	150.00	750	11:52-12:23
		13:30	24-27	28	4.54	0.00	150.00	150.00		13:04-13:41
		13:48	21-24	40	4.13	150.00	300.00	150.00		13:41-14:37
		15:22	18-21	25	4.33	300.00	450.00	150.00		14:37-15:22
		15:24	15-18	18	5.50	450.00	600.00	150.00		15:22-16:10
I110	7/23/2019	14:09	27-30	35	3.72	0.00	150.00	150.00	750	14:07-14:46
		15:29	24-27	40	4.76	150.00	300.00	150.00		14:46-15:23
		15:42	21-24	28	5.38	300.00	450.00	150.00		15:23-16:01
		16:44	18-21	20	5.49	450.00	600.00	150.00		16:01-16:44
	7/24/2019	7:49	15-18	6	5.63	0.00	150.00	150.00		7:47-8:25
I111	7/23/2019	15:34	27-30	30	4.96	0.00	150.00	150.00	750	15:01-15:42
		16:03	24-27	32	5.56	150.00	300.00	150.00		15:42-16:20
		16:44	21-24	25	5.43	300.00	405.00	105.00		16:20-16:44
	7/24/2019	7:50	21-24	25	3.46	0.00	45.00	45.00		7:47-8:04
		8:44	18-21	55	3.62	45.00	195.00	150.00		8:04-8:48
		8:48	15-18	50	4.63	195.00	345.00	150.00		8:48-9:37
I112	7/23/2019	16:01	27-30	40	5.43	0.00	150.00	150.00	750	15:58-16:22
		16:43	24-27	65	2.32	150.00	225.00	75.00		16:22-16:44
	7/24/2019	8:28	21-24	74	1.18	0.00	9.70	9.70		No flow. Pulling to next interval. 8:26-8:41
		9:14	18-21	35	5.63	9.70	365.00	355.30		8:41-10:38
		10:50	15-18	30	4.13	365.00	525.00	160.00		10:38-11:29
I113	7/23/2019	16:15	27-30	32	5.59	0.00	120.00	120.00	750	16:14-16:44
	7/24/2019	7:50	27-30	24	4.01	0.00	30.00	30.00		7:47-7:55
		8:28	24-27	15	4.06	30.00	180.00	150.00		7:55-8:29
		9:14	21-24	28	4.26	180.00	330.00	150.00		8:29-9:23
		9:35	18-21	56	3.96	330.00	480.00	150.00		9:23-9:49
		9:58	15-18	45	3.87	480.00	630.00	150.00		9:49-10:17
I114	7/24/2019	8:05	27-30	32	5.45	0.00	150.00	150.00	750	8:04-8:33
		8:49	24-27	60	3.79	150.00	300.00	150.00		8:33-9:15
		10:07	21-24	55	4.32	300.00	450.00	150.00		9:15-10:01
		10:32	18-21	15	5.63	450.00	600.00	150.00		10:01-10:59
		11:06	15-18	15	6.14	600.00	750.00	150.00		10:50-11:29
I115	7/24/2019	9:41	27-30	40	5.78	0.00	150.00	150.00	750	9:39-10:24
		10:28	24-27	22	4.34	150.00	300.00	150.00		10:24-10:57
		11:06	21-24	60	3.29	300.00	450.00	150.00		10:57-11:55
		13:17	18-21	25	4.41	450.00	600.00	150.00		11:55-13:24
		13:32	15-18	10	4.33	600.00	750.00	150.00		13:24-14:10
I116	7/24/2019	10:25	29.08-30	24	4.70	0.00	47.00	47.00	750	20° angled boring. 10:18-10:31
		10:39	26.28-29.08	28	4.59	47.00	188.00	141.00		10:31-11:02
		11:19	23.46-26.28	48	3.44	188.00	328.00	140.00		11:02-11:57
		13:24	20.64-23.46	55	4.39	328.00	469.00	141.00		11:57-13:24
		13:34	17.82-20.64	10	4.38	469.00	610.00	141.00		13:24-13:53
		14:09	15-17.82	2	4.57	610.00	750.00	140.00		13:53-14:35
I117	7/24/2019	11:33	27-30	30	5.18	0.00	150.00	150.00	750	Water rising rapidly in nearby SM-04. At 3' dtw after 90 gallons. 11:31-13:30
		13:32	24-27	0	4.17	150.00	300.00	150.00		13:30-14:07
		14:41	21-24	60	3.01	300.00	450.00	150.00		14:07-15:30
		15:47	18-21	30	5.54	450.00	600.00	150.00		15:30-16:07
		16:13	15-18	2	4.73	600.00	750.00	150.00		16:07-16:41

S-MicroZVI Sulfidated Zero-Valent Iron AquaZVI

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area

Table 2

CRS CHEMICAL REDUCING SOLUTION

REGENESIS REMEDIATION SERVICES Technology-Based Solutions for the Environment

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I118	7/24/2019	13:16	29.08-30	50	5.29	0.00	47.00	47.00	750	20° angled boring. 13:09-13:22
		13:27	26.28-29.08	30	5.31	47.00	188.00	141.00		13:22-13:59
		14:46	23.46-26.28	55	3.76	188.00	328.00	140.00		13:59-14:49
		14:55	20.64-23.46	22	4.37	328.00	469.00	141.00		14:49-15:28
		16:03	17.82-20.64	45	3.72	469.00	610.00	141.00		15:28-16:12
		16:13	15-17.82	20	4.37	610.00	750.00	140.00		16:12-16:55
I119	7/24/2019	14:15	27-30	32	4.72	0.00	150.00	150.00	750	14:13-14:47
		14:52	24-27	30	6.08	150.00	300.00	150.00		14:47-15:22
		15:31	21-24	64	3.52	300.00	450.00	150.00		15:22-16:28
		16:35	18-21	65	2.69	450.00	600.00	150.00		16:28-17:15
		17:19	15-18	15	6.31	600.00	623.00	23.00		17:15-17:21
	7/25/2019	7:48	15-18	2	4.54	0.00	127.00	127.00		7:44-8:20
I120	7/24/2019	14:39	29.08-30	50	4.79	0.00	47.00	47.00	750	20° angled boring. 14:36-14:46
		14:53	26.28-29.08	45	4.88	47.00	188.00	141.00		14:46-15:25
		15:30	23.46-26:28	50	3.34	188.00	328.00	140.00		15:25-16:02
		16:13	20.64-23.46	40	5.03	328.00	469.00	141.00		16:02-16:45
		17:06	17.82-20.64	5	5.18	469.00	610.00	141.00		16:45-17:17
		17:20	15-17.82	2	5.34	610.00	627.00	17.00		17:17-17:21
	7/25/2019	7:48	15-17.82	0	4.38	0.00	123.00	123.00		7:44-8:24
I121	7/24/2019	16:45	27-30	20	4.89	0.00	150.00	150.00	750	16:41-17:06
		17:21	24-27	55	4.38	150.00	175.00	25.00		17:06-17:21
	7/25/2019	7:47	24-27	22	4.21	0.00	125.00	125.00		7:44-8:11
		8:39	21-24	60	2.60	125.00	275.00	150.00		8:11-9:28
		9:40	18-21	40	3.76	275.00	425.00	150.00		9:28-10:24
		10:43	15-18	10	5.06	425.00	575.00	150.00		10:24-10:56
I122	7/24/2019	16:59	27-30	34	4.22	0.00	75.00	75.00	750	16:58-17:21
	7/25/2019	7:48	27-30	35	4.56	0.00	75.00	75.00		7:44-8:06
		8:38	24-27	35	4.14	75.00	225.00	150.00		8:06-8:48
		9:40	21-24	60	3.96	225.00	375.00	150.00		8:48-10:18
		10:24	18-21	46	4.26	375.00	525.00	150.00		10:18-11:03
		11:13	15-18	15	4.31	525.00	675.00	150.00		11:03-11:46
I123	7/25/2019	8:22	27-30	30	6.23	0.00	150.00	150.00	750	8:22-8:46
		9:26	24-27	35	4.96	150.00	300.00	150.00		8:46-9:24
		9:40	21-24	55	3.86	300.00	450.00	150.00		9:24-10:21
		10:31	18-21	58	2.99	450.00	600.00	150.00		10:21-11:12
		11:29	15-18	15	6.62	600.00	750.00	150.00		11:12-11:57
I124	7/25/2019	9:04	27-30	24	5.80	0.00	150.00	150.00	750	8:42-9:26
		9:41	24-27	10	4.57	150.00	300.00	150.00		9:26-10:18
		10:18	21-24	20	5.07	300.00	450.00	150.00		10:18-11:01
		11:28	18-21	10	5.62	450.00	600.00	150.00		11:01-11:43
		11:44	15-18	6	5.02	600.00	750.00	150.00		11:43-13:00
I125	7/25/2019	10:59	27-30	38	5.12	0.00	150.00	150.00	750	10:57-11:26
		11:28	24-27	25	5.44	150.00	300.00	150.00		11:26-13:04
		13:08	21-24	50	3.12	300.00	450.00	150.00		13:04-13:53
		14:07	18-21	25	5.33	450.00	600.00	150.00		13:53-14:25
		14:27	15-18	30	6.15	600.00	750.00	150.00		14:25-14:50
I126	7/25/2019	11:50	27-30	32	4.82	0.00	150.00	150.00	750	11:48-13:07
		13:08	24-27	28	5.14	150.00	300.00	150.00		13:07-13:44
		14:31	21-24	62	2.86	300.00	450.00	150.00		13:44-14:35
		14:36	18-21	58	2.96	450.00	600.00	150.00		14:35-15:19
		15:43	15-18	20	6.57	600.00	750.00	150.00		15:19-15:53

PES Environmental-SMI Mountain View
S-MicroZVI Injection Summary Log
Down-Gradient Barriers Area
Table 2

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Solution Injected			Total Gallons Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval		
I127	7/25/2019	12:45	27-30	30	4.40	0.00	150.00	150.00	750	12:39-13:24
		13:26	24-27	40	5.71	150.00	300.00	150.00		13:24-13:51
		13:57	21-24	58	4.12	300.00	450.00	150.00		13:51-14:17
		14:22	18-21	55	3.91	450.00	600.00	150.00		14:17-15:06
		15:20	15-18	10	5.45	600.00	750.00	150.00		15:06-15:38
I128	7/25/2019	13:04	27-30	15	1.78	0.00	128.00	128.00	750	Water rising rapidly in SM-03 at 40 gallons. Slowing down injection rate. Couldn't get full volume without immediate well rise to almost surface. Redistributing to next interval. 13:03-14:20
		14:56	24-27	58	3.06	128.00	300.00	172.00		14:20-15:18
		15:28	21-24	60	2.84	300.00	450.00	150.00		15:18-16:34
		16:40	18-21	15	5.42	450.00	484.00	34.00		16:34-16:47
	7/26/2019	8:49	18-21	12	5.02	0.00	116.00	116.00		8:12-8:55
		8:53	15-18	10	4.38	116.00	266.00	150.00		8:55-9:32
I129	7/25/2019	14:55	27-30	32	4.99	0.00	150.00	150.00	750	14:53-15:20
		15:27	24-27	24	4.96	150.00	300.00	150.00		15:20-15:48
		15:52	21-24	55	3.24	300.00	450.00	150.00		15:48-16:24
		16:42	18-21	52	3.98	450.00	459.00	9.00		16:24-16:47
	7/26/2019	8:18	18-21	48	3.16	0.00	141.00	141.00		8:12-9:01
		9:01	15-18	30	5.11	141.00	291.00	150.00		9:01-9:33
I130	7/25/2019	15:52	27-30	30	5.09	0.00	150.00	150.00	750	Water rising in SM-03. 15:41-16:30
		16:41	24-27	20	3.66	150.00	210.00	60.00		Still influencing SM-03. 16:30-16:47
	7/26/2019	8:19	24-27	15	3.98	0.00	90.00	90.00		8:12-8:48
		9:01	21-24	12	3.85	90.00	240.00	150.00		8:48-9:59
		10:19	18-21	10	4.39	240.00	390.00	150.00		9:59-10:57
		11:40	15-18	2	4.89	390.00	540.00	150.00		10:57-12:47
I131	7/25/2019	16:35	27-30	34	5.31	0.00	150.00	150.00	750	16:02-16:32
		16:42	24-27	45	3.87	150.00	197.00	47.00		16:32-16:47
	7/26/2019	8:19	24-27	35	3.44	0.00	103.00	103.00		8:12-8:50
		10:12	21-14	60	2.36	103.00	253.00	150.00		8:50-10:14
		10:19	18-21	24	3.98	253.00	403.00	150.00		10:14-11:01
		11:40	15-18	10	4.05	403.00	553.00	150.00		11:01-12:53
I132	7/26/2019	9:41	27-30	40	6.39	0.00	150.00	150.00	750	9:35-9:56
		10:09	24-27	36	5.83	150.00	300.00	150.00		9:56-10:25
		10:25	21-24	48	2.34	300.00	450.00	150.00		10:25-11:14
		11:40	18-21	50	3.01	450.00	600.00	150.00		11:14-13:19
		13:19	15-18	36	6.13	600.00	750.00	150.00		13:19-13:48
									Total Gallons:	
									38,250	

APPENDIX C: Photo Logs

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

Photo Log – PES, SMI Holdings Mountain View Site

Photo 1: Regenesis staging trailer in work area.

Photo 2: Penecore Geoprobe drill rig in Grid Source area.

Photo 3: Geoprobe making angled direct push injection point in Barriers.

Photo 4: Injection hoses connected to angled injection points.

Photo 5: Penecore refilling cored points.

Photo 6: Drill rig operating maneuvering in tight area on edge of property.

REGENESIS
REMEDIATION SERVICES
Technology-Based Solutions for the Environment

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

Photo Log – PES, SMI Holdings Mountain View Site

Photo 7: Injection point near monitoring well.

Photo 8: Regenesis injecting on 4 points simultaneously.

Photo 9: Product staged near Regenesis trailer for mixing and injection.

Photo 10: Regenesis employee mixing and transferring products to trailer.

Photo 11: Empty product containers staged for collection at end of project.

APPENDIX F

WASTE DISPOSAL DOCUMENTATION

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
Not Required	1	866-423-6060	0720194060

GENERATOR

5. Generator's Name and Mailing Address
SMI Holding LLC
170 Wood Avenue South, 6th Floor
Iselin NJ 08830
Generator's Phone:

Generator's Site Address (if different than mailing address)
SMI Holding LLC
487 Middlefield Road
Mountain View CA 94043

6. Transporter 1 Company Name: American Integrated Services, Inc.
U.S. EPA ID Number: CAR000148338

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Crosby & Overton, Inc.
1630 W. 17th Street
Long Beach CA 90813
Facility's Phone: 562 432-5445
U.S. EPA ID Number: CAD028409019

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1	Non-Hazardous Waste Liquid (Water)	3	DM	150	G	
2						
3						
4						

13. Special Handling Instructions and Additional Information
Wear proper PPE while handling. Weights or volumes are approximate.

AIS Job#79006-6-12 / Profile:27578

3455

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Chris Pollio, PES for SMI Holding, LLC
Signature
Month: 7 Day: 30 Year: 12

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: MARCO MARTINEZ
Signature
Month: 7 Day: 30 Year: 12

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name
Signature
Month Day Year

GENERATOR'S/SHIPPER'S INITIAL COPY

SCHUETZ Container Systems

BOL Number: 0151140012

STRAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE **Date:** 7/29/2019

This form contains only the information necessary for the motor carrier to deliver, rate, and invoice the shipment described below. The shipper and/or the consignee are client(s) of C.H. Robinson Worldwide, Inc., (CHR) a third party logistics service and payer of the freight bill. All agreements between the carrier and CHR are contained in assigned contract agreement.

PES ENVIRONMENTAL INC
487 E Middlefield Rd
Mountain View, CA 94043
JAMIE PHILLIPS GARY THOMA
PH: (415) 250-2864
FAX:
Reference Number: 0151140012

Recon Services Inc
2255 Via Cerro
RIVERSIDE, CA 925092412
Andy Barajas
PH: (510) 772-6089
FAX: (951) 682-1411
Reference Number: 0151140427, 0151140012

Carrier: Ciriaco Valencia
Pro#:
Load#: 300246088
Ship ID#: 0151140012

All Freight charges PPD/3rd party bill to:
C.H. Robinson Worldwide, Inc
Billing
P.O. Box 3470

Chicago, IL 60654

All containers must be steel tubular IBC's (not wire mesh) in reusable condition. All IBC's must be completely EMPTY – if the valve is opened, no product comes out. Units arriving that do not meet these conditions will be refused and all shipping costs, both from and back to shipper will be billed to shipper. Return freight and/or Disposal costs for non-empty/damaged containers is the shipper's responsibility. Shipper must provide to the carrier the proper Placards for the outside of the truck when shipping IBC's with hazardous materials (DOT reg. 49CFR 172.506)

Pickup Information: Phone:415-250-2864,Fax:,Hours:24/7, Bldg/Dock:PARKING LOT BEHIND BLDG, Gary: 415-899-1600 / 415-250-7217 EMAIL BOL TO BOTH: jphillips@pesenv.com ; gthomas@pesenv.com *****415-250-7217 (cell phone) ****

All totes must be DOUBLE stacked and loaded sideways (nozzle to nozzle). Each IBC has a nominal weight of 150lbs. If the quantity of IBC's change, the weight will also change accordingly. For Clarification, have the Driver/Shipper call Schuetz at 888-724-8389 option 4, or CH Robinson for Schuetz Container Systems at 888-202-4052. Bill of Lading number must be on all invoices for payment.

HM	Item Description	IBC QTY	Weight	UOM
	Intermediate Bulk Container: NMFC Item: 41024, Class: 200	15	2250	lbs
	NON HAZARDOUS, Not Regulated Residue Last Contained: S-MICROZVI OR S-MZVI, ,			
	Intermediate Bulk Container: NMFC Item: 41024, Class: 200	18	2700	lbs
	NON HAZARDOUS, Not Regulated Residue Last Contained: AQUAZVI, ,			
	Totals:	**33**	**4950**	

Shipper must Provide Carrier with the Placards for Hazmat. Return Freight Cost for Non-Empty Containers is the Shipper's Responsibility. Shipper certifies that each container being offered is Empty.

"This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation."

Shipper Signature X _____ Date: _____ Trailer# _____

Consignee Signature X _____ Date: _____ Seal# _____

Driver Signature X _____ Date: _____ Seal# _____

Permanent post-office address of shipper. * MARK WITH "X" TO DESIGNATE MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

	Receiving Date	Quantity	Receiver Signature

Scheutz			
Non-Scheutz			

BILL OF LADING

BDG 083377

Ticket Number: PAL 20609-36

Generator

Material Description: EXCAVATION

Load Count: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Name: SMI
Street Address: 1135 E. MIDDLEFIELD RD
City, Province or State: MOUNTAIN VIEW, CA
Postal or Zip: 94043
Phone No:

Material Type:
- ☒ Soil/Solids
- ☐ Water
- ☐ Both

Excavation Area Coordinates:

Lat: _____ Long: _____

LSD (CN Optional): _____

Generator or Authorized Representative Certification:
This is to certify that the above named materials are properly characterized and that the transporter is authorized to use the named disposition site.

Authorized Signature: _____ (Signature) Print Name: LUIS FIGUEROA (Name/Company Name) Date: 7/31/24 (Date Shipped)

Transporter

Name: ~~SGL~~ Badger Daylighting Badger Area: XSA San Jose CA
Street Address: 1586 INDUSTRIAL AVE
City, Province or State: San Jose CA
Postal or Zip: 95112
Phone No: (408) 309-6207

Authorized Signature: _____ (Signature) Print Name: LUIS FIGUEROA (Name/Company Name) Date: 7/31/24 (Date Shipped)

Disposition Facility

Quantity/Units - Daily Total

_____ (Full Load Equivalents)

Disposition Area Coordinates

Lat: _____ Long: _____

LSD (CN Optional): _____

Name: JES ENVIRONMENTAL
Street Address: 3675 POTRERO HILLS LN
City, Province or State: SUISUN CITY
Postal or Zip: 94585
Phone No: (707) 432-4627

Authorized Signature: _____ (Signature) Print Name: _____ (Name/Company Name) Date: 7/31/24 (Date Shipped)

*Note: For unsupervised unloading areas write "N/A" in the signature spot for the disposition site authorized signer.

BILL OF LADING

BDG 083376

Ticket Number: PHLF 19-686

Generator

Material Description: _____

Load Count: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Name: DJS Environmental

Street Address: 4155 E Littleton Rd

City, Province or State: Littleton

Postal or Zip:

Phone No:

Material Type:
- ☐ Soil/Solids
- ☐ Water
- ☐ Both

Excavation Area Coordinates:

Lat: _____ Long: _____

LSD (CN Optional): _____

Generator or Authorized Representative Certification:
This is to certify that the above named materials are properly characterized and that the transporter is authorized to use the named disposition site.

Authorized Signature: _____ (Signature) Print Name: _____ (Name/Company Name) Date: _____ (Date Shipped)

Transporter

Name: Badger Daylighting

Badger Area: _____

Street Address:

City, Province or State:

Postal or Zip:

Phone No:

Authorized Signature: _____ (Signature) Print Name: _____ (Name/Company Name) Date: 7-31-19 (Date Shipped)

Disposition Facility

Quantity/Units - Daily Total

_____ (Full Load Equivalents)

Disposition Area Coordinates

Name: Potrero Landfill

Street Address: 3615 Potrero Hills Ln.

City, Province or State: Suisun City

Postal or Zip:

Lat: _____ Long: _____

LSD (CN Optional): _____

Phone No:

Authorized Signature: _____ (Signature) Print Name: _____ (Name/Company Name) Date: 7/31/19 (Date Shipped)

*Note: For unsupervised unloading areas write "N/A" in the signature spot for the disposition site authorized signer.

DISTRIBUTION

THIRD QUARTER 2019 STATUS REPORT
SULFIDATED ZERO VALENT IRON IN-SITU PILOT TEST

SMI HOLDING LLC
455 AND 485/487 EAST MIDDLEFIELD ROAD
MOUNTAIN VIEW, CALIFORNIA

OCTOBER 16, 2019

Superfund Program SFD-7-3 — Electronic, 1 Copy & 2 CD's
US EPA Region IX
75 Hawthorne Street
San Francisco, California 94105
Attention: Alana Lee
Lee.Alana@epa.gov

SMI Holding LLC — Electronic Only
Susan O'Connor
sue.oconnor@siemens.com

SMI Holding LLC — Electronic Only
Gary Jones
gary.a.jones@me.com

SMI Holding LLC — Electronic Only
Thomas Kerl
kerl.thomas@siemens.com

Symantec — Electronic Only
Peggy Song
Peggy Song@symantec.com

DISTRIBUTION
(Continued)

THIRD QUARTER 2019 STATUS REPORT
SULFIDATED ZERO VALENT IRON IN-SITU PILOT TEST

SMI HOLDING LLC
455 AND 485/487 EAST MIDDLEFIELD ROAD
MOUNTAIN VIEW, CALIFORNIA

OCTOBER 16, 2019

Erler & Kalinowski, Inc. — Electronic Only
Michelle King
mkking@ekiconsult.com

Allen Matkins Leck Gamble Mallory & Natsis LLP — Electronic Only
Sandi Nichols
snichols@allenmatkins.com

PES Electronic File