Div of Waste Management
and Radiation Control

JUN 18 2018

WASATCH
ENVIRONMENTAL

Mr. Scott Anderson
Executive Director, Utah Department of Environmental Quality
Division of Waste Management and Radiation Control
195 North 1950 West, 2nd Floor
P.O. Box 144880
Salt Lake City, Utah 84114-4880

June 18, 2018
Project No.: 1673-011G

DSHW-2018-005694

SUBJECT: Site Management Plan - Final
Pepper River Facility
3333 West 9000 South
West Jordan, Utah

Mr. Anderson,

On behalf of our client, Aligned Energy, Wasatch Environmental, Inc., is submitting the attached Site Management Plan (SMP) report regarding the Pepper River Facility. Wasatch received comments from the Division of Waste Management and Radiation Control (DWMRC) on June 13, 2018, regarding the draft SMP submitted to DWMRC for review and comments. All DWMRC comments were addressed in the final SMP being submitted.

Please feel free to contact us with any questions, comments, or concerns you may have regarding site.

Best regards,

Blake Downey, P.G.
Project Hydrogeologist

C.C.: Mr. David Larsen,

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SITE MANAGEMENT PLAN
PEPPER RIVER FACILITY
3333 WEST 9000 SOUTH
WEST JORDAN, UTAH

Project No. 1673-011G

To:

Mr. Scott Anderson, Director
Utah Department of Environmental Quality
Division of Waste Management and Radiation Control
195 North 1950 West, 2nd Floor
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Prepared For:
Mr. Michael Welch
Aligned Energy
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Prepared By:

Wasatch Environmental, Inc.
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June 18, 2018

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SITE MANAGEMENT PLAN
PEPPER RIVER FACILITY
3333 WEST 9000 SOUTH
WEST JORDAN, UTAH

1. INTRODUCTION

Wasatch Environmental, Inc., (Wasatch) has prepared this Site Management Plan (SMP) to present the planned long-term approach for managing volatile organic compound (VOC) and semi-volatile organic compound (SVOC) impacts to soil and soil gas at the Pepper River facility Restricted Property.

This SMP has been prepared in accordance with the requirements of R315-101 "Cleanup Action and Risk-Based Closure Standards" that establishes information requirements to support risk-based cleanup and closure standards at facilities for which remediation or removal of hazardous constituents to background levels is not expected to be achieved. Except as set forth in the Environmental Covenant (EC) recorded with the Salt Lake County Recorder's Office, the "Holder" (as defined in the EC) shall comply with the SMP. Provisions of the SMP relating to the land use limitations shall be the responsibility of the "Owner" (as defined in the EC) of the property

1.1 Site Description

The Pepper River facility is 59.84 acres in size and consists of one parcel (parcel number: 27-05-400-034) located at 3333 West 9000 South in West Jordan, Utah. However, only a portion of this parcel is included in the restrictions described below and considered to be the Restricted Property. The remainder of the property is unrestricted. The legal description obtained from a professional survey of the Restricted Property boundary is presented below:

Legal Description of Restricted Property - Beginning at a point N0°01'27"W 2247.20 feet along the Section Line (Basis of Bearing) and S89°58'33"W 366.44 feet from the Southeast Corner of Section 5, Township 3 South, Range 1 East, Salt Lake Base and Meridian; thence S0°02'39"E 403.23 feet; thence S89°58'51"W 83.11 feet; thence S0°01'09"E 139.89 feet; thence S39°35'32"W 60.31 feet; thence N89°32'43"W 97.94 feet; thence N68°52'34"W 307.01 feet; thence N0°01'09"W 74.80 feet; thence S89°58'51"W 99.34 feet; thence N0°00'08"W 402.90 feet; thence N89°57'01"E 604.89 feet to the point of beginning. The Restricted Property is 7.0162 acres in size.

A Facility Location Map and Facility Parcel and Restricted Property Boundary Map are presented as Figures 1 and 2, respectively.

The facility is currently under renovation and was formerly an unoccupied semiconductor manufacturing facility, with excess grazing land and recreational fields. The facility and vicinity generally consist of industrial, educational, agricultural, and residential properties.

The facility is occupied by an approximately 250,000-square-foot, slab-on-grade, former manufacturing building constructed in 1974. The building is located on the northern portion of the property and is constructed of concrete block with a flat membrane roof. Interior surfaces consist of wallboard and block walls; drop acoustic, wallboard, and corrugated metal ceilings; and concrete, vinyl tile, sheet vinyl, and carpeted floors. There is asphalt-paved parking located on the northern and eastern sides of the building; a storage and operations yard on the southern side of the building; recreational fields along the eastern property boundary; a power substation along the western property boundary; and grazing land on the southern portion of the property. Southwest of the former storage and operations yard there was an area that was previously occupied by a nitrogen plant operated by Praxair.

There is an inline, municipal water, booster pump station building that is located in the recreational fields and is owned and operated by the City of West Jordan. There is also a fire suppression building located

in the southwestern portion of the facility. The building sits atop a buried 250,000-gallon water tank. Water for the fire suppression system is pumped from the Utah Lake Distribution Canal that adjoins the western property boundary.

The facility is accessed by 9000 South along the northern property boundary and 3200 West Street along the eastern property boundary.

Since construction, the facility has been connected to the local municipal water and sewage system. The building is heated with natural gas and cooled with roof-mounted heating, ventilation, and air conditioning (HVAC) units.

1.2 Site Background

The facility was agricultural land prior to development with the current building in 1974. The building was constructed by National Semiconductor, a semiconductor manufacturer, which operated on the property from 1976 until 1997, when Fairchild Semiconductor purchased the property. Fairchild manufactured semiconductors on the property until late 2015, when they ceased operating. The property has been vacant since that time. In 2015, the facility was decontaminated and decommissioned.

The facility has been identified on numerous regulatory databases including: the Resource Conservation and Recovery Act (RCRA) database; Toxic Release Inventory database; Spills database; and National Pollution Discharge Elimination System. Hazardous waste generated on the facility has included, but is not limited to, non-halogenated solvents, chlorinated solvents, ignitable material, corrosives, arsenic, lead, silver, and methyl ethyl ketone.

Spills and releases of acids, waste solvents, and diesel fuel have occurred at the facility in the past. Many of the spills and releases of acids and waste solvents were of small quantity, quickly contained, or addressed to the satisfaction of the overseeing agency.

Fairchild Semiconductor provided Wasatch with numerous prior environmental reports for the facility including a prior Phase I Environmental Site Assessment (ESA), and numerous subsurface investigation, and groundwater monitoring reports. Information provided by Fairchild Semiconductor documents that the facility was vacant land prior to construction of the initial building on the property in 1974. The facility subsequently operated as a semiconductor device fabrication facility beginning sometime during 1976 until the summer of 2015. Information obtained from Fairchild Semiconductor documents that facility decommissioning, decontamination, and clean-closure confirmation sampling was conducted within the manufacturing building.

In 2016, Wasatch prepared three documents related to the facility:

- Phase I ESA report dated August 19, 2016, which identified several recognized environmental conditions;
- Phase II ESA report dated September 30, 2016, which confirmed the presence of various VOC contaminants in sub-slab soil gas, and defined the lateral and vertical extent of a diesel fuel release; and
- Pre-Demolition Asbestos Survey report dated November 11, 2016, which identified and quantified asbestos-containing building materials.

Aligned Energy Data Centers (SLC), LLC, (Aligned Energy) the current property owners, requested additional environmental sampling at the facility to further evaluate impacts documented in the September 30, 2016, Phase II ESA report. Impacts documented in the Phase II report included the presence of various VOCs in sub-slab soil gas and minor VOC soil impacts. Additionally, Aligned Energy requested that the vacant land south of the building be screened for potential dumping, and evaluate certain on-site features that may contain hazardous materials that would require special handling during removal.

In 2017 and 2018, Wasatch prepared two additional documents related to the facility:

- Investigation Activities report dated December 15, 2017, which defined the lateral and vertical extent of VOC impacts near the former waste solvent tank pit area, and evaluated sub-slab soil gas concentrations and indoor air concentrations; and
- An official Response to Comments dated April 20, 2018, submitted as an addendum to the December 15, 2017, Investigation Activities report. This addendum addressed comments expressed by the Utah Division of Waste Management and Radiation Control (DWMRC) regarding the remaining VOC and SVOC impacts at the facility. All of DWMRC concerns were adequately addressed and accepted by DWMRC personnel in this addendum.

DWMRC has agreed that future groundwater monitoring programs are not required for the Restricted Property.

DWMRC requested that all bio-venting, groundwater monitoring, and soil vapor monitoring wells be properly abandoned. These wells were abandoned by Wasatch and, where required, by Direct Push Services (all wells greater than 30 feet) between May 3, 2018 and May 16, 2018. All well abandonment activities followed applicable regulations, procedures, and standards outlined in the Utah Division of Water Rights State - Utah Well Handbook, Section R655-4-12.

DWMRC requested that the former waste solvent tank pit be properly abandoned. The former waste solvent tank pit was abandoned in early May 2018 (see Figure 3 for location). The former waste solvent tank pit and well abandonment activities were documented in the "Well Abandonment and Former Waste Solvent Tank Pit Abandonment" report dated June 13, 2018 (see Appendix A). The June 13, 2018 report was submitted to and approved by the Utah DWMRC on June 14, 2018. Pit abandonment proceeded as follows: First, all the joints, cracks, and penetrations of the pit were sealed with a high-strength epoxy. Next, the pit was filled with pea gravel and capped with 4 inches of 4,000 pounds per square inch (PSI) air entrained concrete. The joints of the concrete and the perimeter of the pad where the old and the new concrete meet were sealed, with Sikaflex sealer, to prevent future infiltration of water into the pit.

2. RISK ASSESSMENT AND SITE-SPECIFIC SCREENING LEVELS

The Utah DWMRC determined that a Human Health Risk Assessment and development of Site-Specific Screening Levels (SSSLs) would not be required for the Pepper River facility, given that the exposure pathways for on-site workers are not complete. Therefore, United States Environmental Protection Agency (U.S. EPA) Regional Screening Levels (RSLs) were used to evaluate impacts to soil, the U.S. EPA Vapor Intrusion Screening Level (VISL, version 3.2.5) were used to evaluate sub-slab soil gas concentrations, and U.S. EPA RSLs for Industrial Air were used to evaluate indoor air concentrations.

3. SITE MANAGEMENT

Aligned Energy shall implement the following management requirements within the Restricted Property pursuant to Utah Code R315-101-6.

3.1 Diesel Fuel Release Area Soil Management

SVOC impacts to soil originating from former USTs, and exceeding applicable U.S. EPA RSLs for Residential Soil, have been documented south of the on-site building (see Figure 3). Depth to impacts ranged from 14 to 21.5 feet below ground surface (bgs); therefore, if soils in this area are excavated to a depth greater than 13 feet bgs, a work plan documenting the proposed work and soil disposal, beneficial reuse, etc. must be submitted to and approved by DWMRC prior to the commencement of the work.

3.2 Former Waste Solvent Tank Pit Soil Management

If for any reason in the future, the former waste solvent tank pit is demolished or removed, the VOC-impacted soil located beneath the pit will require proper characterization and remediation. A work plan documenting the proposed work and soil disposal, beneficial reuse, etc. must be submitted to and approved by DWMRC prior to the commencement of the work.

3.3 Management of Soil Under Building

The following guidelines apply to soil management of soil located beneath the on-site building within the Restricted Property:

1. All soil located beneath the on-site building that is excavated during possible future reconstruction activities will be placed back into the excavation they originated from upon completion of the required construction activities, or the soils will be sampled and characterized to identify proper off-site disposal and/or re-use options.
2. No soil originating beneath the on-site building is to leave the Restricted Property without being sampled and characterized.
3. Soil that is to be transported off-site should be stockpiled on visqueen as close as possible to the point of generation and sampled and characterized.
4. Even after testing, no soil is to be transported off-site and used as fill for residential, schools, daycare, or long-term care facilities.
5. Sample results used to make soil and waste management decisions (disposal, beneficial reuse, etc.) will be maintained by the Owner.

3.4 Construction Worker Health and Safety

Construction workers at the Restricted Property, particularly those working with shallow soil, should be notified of the VOC and SVOC impacts that are present, and provided with information regarding how to minimize their exposure to the contaminants. Additionally, all construction workers should be operating under a site-specific health and safety plan.

3.5 Institutional Controls

Based on the VOC and SVOC concentrations detected in soil and soil gas at the Pepper River facility that exceed applicable screening levels, and as part of the corrective action at the Pepper River facility, the "Owner", Aligned Energy, as defined in the EC, will comply with activity and use limitations placed on the property as outlined in the EC that will be recorded on the property with the Salt Lake County Recorder's Office.

3.5.1 Site Management Plan

Except as specifically set forth in the EC, the Holder shall comply with the SMP submitted to the Utah DWMRC and contained in the Administrative Record described above as it affects the property.

3.5.2 Pepper River Facility Restrictions

The following restrictions apply only to the Pepper River facility Restricted Property:

3.5.2.1 Land Use Restrictions

The land use within the Restricted Property located at the Pepper River facility is limited to commercial/industrial uses consistent with the commercial/industrial worker exposure scenario as described in the Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation, Parts A and B. Uses that include managed care facilities, hospitals or

any type of business that would require a caretaker to reside on the Restricted Property are not approved uses. Uses that would expose children to contaminants at the Restricted Property for extended periods of time (such as day care and school facilities) are also not approved. Residential uses are prohibited.

Future Development or Disturbances. If activities are undertaken that access or disturb soils under the Restricted Property (below the on-site building, beneath the former waste solve tank pit, or from the diesel fuel release impacted soils), on-site workers and/or construction workers may be exposed to VOC or SVOC contaminated soil and the Owner and/or Holder shall insure that steps are taken to prevent worker exposure to contamination. Management and disposal of impacted media from the Restricted Property must be consistent with all pertinent federal and state environmental laws.

Infiltration Prevention. The Owner of the Restricted Property shall maintain the cap materials (concrete and sealer) at the former waste solvent tank pit to minimize infiltration as described in Section 3.5.4.

3.5.3 Site Inspections

The Owner of the Restricted Property shall conduct an annual visual inspection (to be completed in June of each year) of the cap materials (concrete and sealer) located at the former waste solvent tank pit. The resulting inspection report shall be maintained for a minimum of 5 years and must be made available to the Utah DWMRC within 30 days of a request for inspection reports. These inspections would need to be completed to ensure the cap is in good condition.

3.5.4 Infiltration Prevention

The concrete and sealer cap located on the former waste solvent tank pit within the Restricted Property will be maintained in good condition. Before any changes to the configuration of the cap materials are made, the Owner of the affected portion of the Restricted Property will first develop a work plan to notify and limit any onsite workers and/or construction workers that may be exposed to VOC contaminated soil and the Owner and/or Holder shall insure that steps are taken to prevent worker exposure to contamination. Notwithstanding the foregoing, routine and temporary concrete maintenance and utility maintenance requiring concrete disturbances, shall not require a work plan. Reconfiguration of the cap materials on the former waste solvent tank pit must not increase the potential for groundwater infiltration beyond the current land use. If at any time during a site inspection and/or general working hours significant cracks are observed in the cap materials, the observed crack(s) must be appropriately sealed to prevent water infiltration.

3.5.5 Maintenance, Access, and Inspections

Under the EC, the Owner of any portion of the Restricted Property, shall be responsible for the continued maintenance of any engineering controls implemented under this SMP and EC, on the portion of the Restricted Property which they own.

The Holder under the EC and the Director of the DWMRC (Director) and their respective authorized agents, employees, and contractors shall have rights of reasonable access to the Restricted Property at any time after the effective date of the EC for inspections and monitoring of the compliance with the EC, and for complying with the terms and conditions of the EC and this SMP. Nothing in this SMP shall be construed as expanding or limiting any access and inspection authorities of the DWMRC and Director under the law.

3.5.5.1 Notice

Any party or person desiring to access the Restricted Property under authority of the EC shall provide notice to the then current Owner of the affected portion of the Restricted

Property not less than 48 hours in advance of accessing the Restricted Property, except in the event of an emergency condition which reasonably requires immediate access. In the event of any such emergency condition, the party exercising this access right will provide notice to the then current owner of the affected portion of the Restricted Property requiring access as soon thereafter as is reasonably possible. The DWMRC, the Director, and their authorized officers, employees, or representatives may, at any reasonable time and upon presentation of appropriate credentials, have access to the Restricted Property.

3.5.5.2 Disruption

To the extent that the Holder, the Director or their authorized representatives, conduct any activities on or within any portion of the Restricted Property, they will use reasonable efforts to comply with the then current Owner's security needs and requirements, and will conduct such activities so as to cause the least amount of disruption to the use of the affected portion of the Restricted Property as may be reasonably possible. Any person who conducts any activities shall repair or replace any improvements or landscaping damaged on the affected portion of the Restricted Property by such activities. The Director will determine what needs, requirements, and activities are reasonable. Should the Director's activities cause damage to the affected portion of the Restricted Property improvements or landscaping, the injured party may present a claim against the State of Utah in accordance with Utah law.

3.5.6 Environmental Covenant

An EC containing the above referenced institutional controls, will be filed for recording in the same manner as a deed to the property, with the Salt Lake County Recorder's Office.

3.6 Site Management Contacts

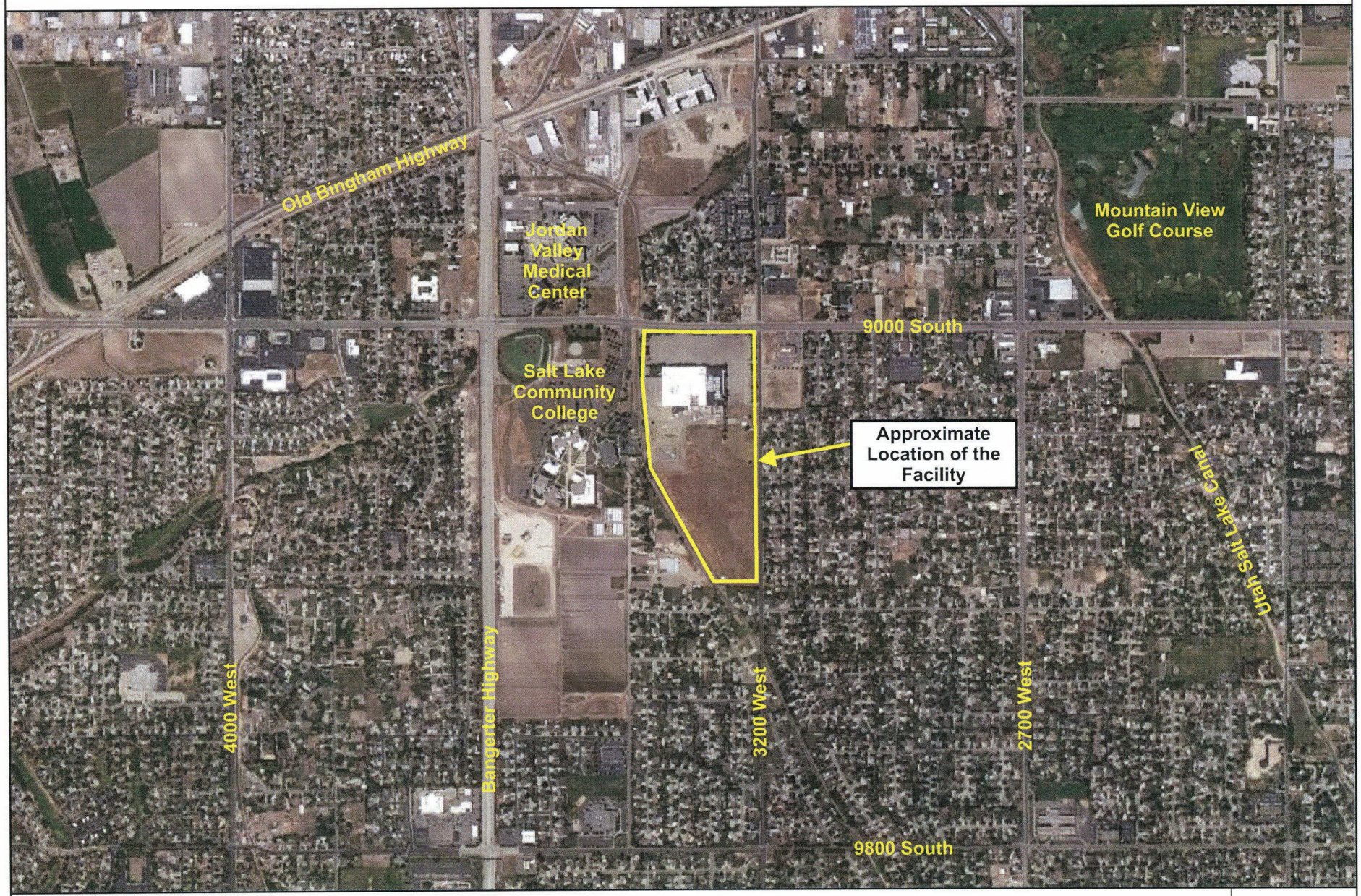
Inquiries concerning the SMP should be directed to the following:

Aligned Energy
Manger
2800 Summit Avenue
Plano, Texas 75074
(203) 981-6922

Utah Department of Environmental Quality
Division of Waste Management and Radiation Control
Director
P.O. Box 144880
Salt Lake City, Utah 84114-4880
(801) 536-0200

Figures

Pepper River Property WEI 1673-011G



Scale: 1" equals approximately 1,350'

Facility Location Map | Figure 1

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WASATCH ENVIRONMENTAL

Pepper River Property WEI 1673-011G

Scale: 1" equals approximately 200'

Facility Parcel and Restricted Property Boundary Map

Figure 2

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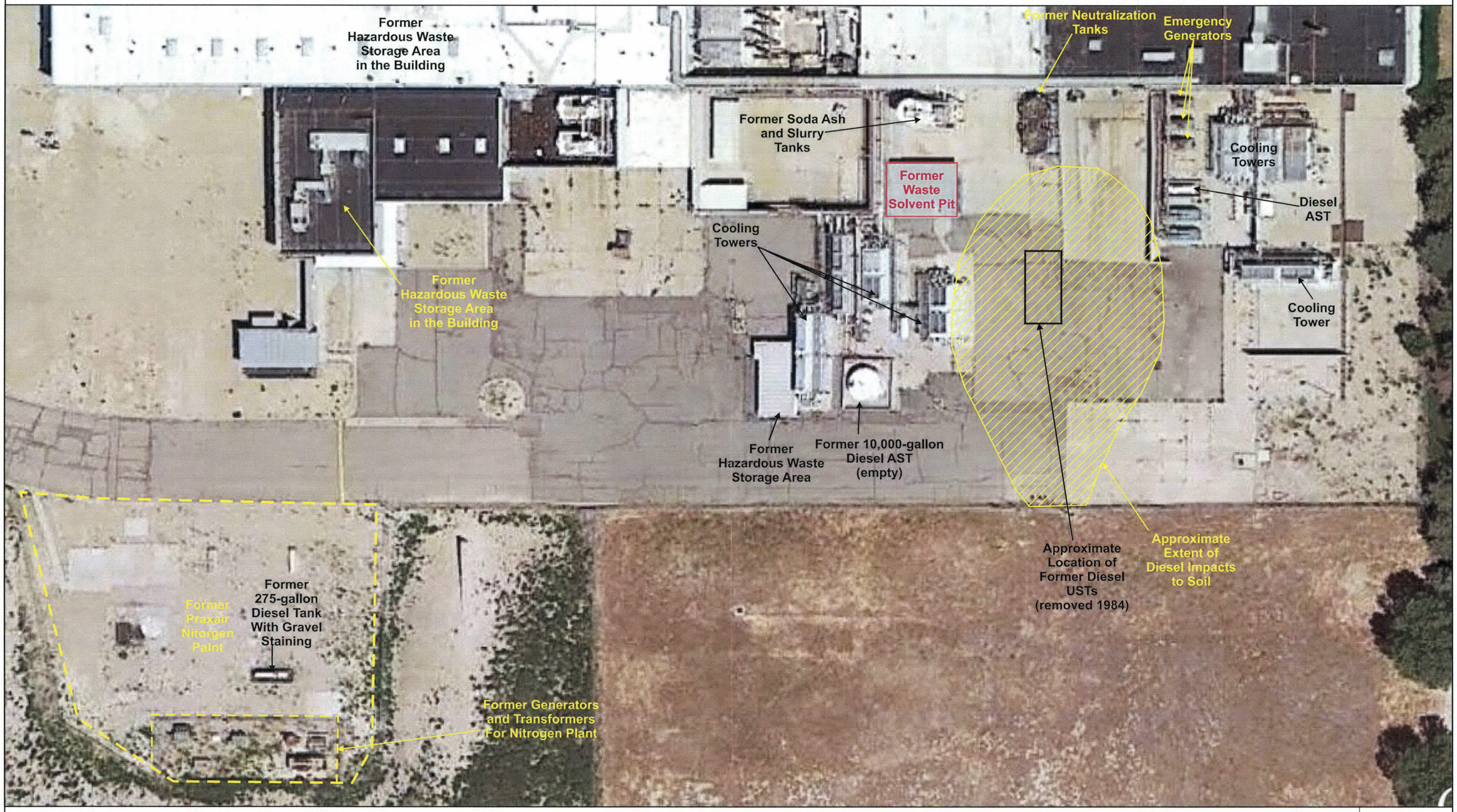
Pepper River Property

WEI 1673-011G



Scale: 1" equals approximately 45'

Facility Storage Yard Feature Map

Figure 3

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Appendix A

Well Abandonment and Former Waste Solvent Tank Pit Abandonment Report

WASATCH
ENVIRONMENTAL

Mr. Michael Welch
Aligned Energy
2800 Summit Avenue
Plano, Texas 75074

June 13, 2018
Project No.: 1673-011D/1673-011I

SUBJECT: Well Abandonment and Former Waste Solvent Tank Pit Abandonment
Pepper River Project
3333 West 9000 South
West Jordan, Utah

INTRODUCTION

Several petroleum hydrocarbon and solvent releases have been documented at the Pepper River facility (Facility) located at 3333 West 9000 South in West Jordan, Utah. During investigation and remediation activities soil vapor monitoring wells, groundwater monitoring wells, and bio-venting wells were installed. Utah Division of Waste Management and Radiation Control (DWMRC) has agreed that future groundwater monitoring programs are not required for the Facility. Based on recent conversations with the Utah DWMRC, the on-site bio-venting, groundwater, and soil vapor monitoring wells associated with past releases require proper abandonment to facilitate the closure of the Facility under an environmental covenant and site management plan. Additionally, the Utah DWMRC requested that the former waste solvent tank pit be abandoned to prevent water infiltration into this area.

WELL ABANDONMENT ACTIVITIES

Bio-Venting Wells

On May 3-4, 2018, Wasatch personnel completed bio-venting well abandonment activities of eight 2-inch and seven 1-inch bio-venting wells located at the Pepper River facility within the diesel release area. The former bio-venting well locations are presented on Figure 1. All bio-venting wells were less than 30 feet deep; therefore, a licensed well driller was not required to complete the well abandonment activities.

All bio-venting wells were originally set in paved areas (concrete or asphalt). First, the rim of the bio-venting well vaults and the circular vault lids were removed. Next, the casing was then cut down to 1 foot below ground surface (bgs). The bio-venting wells were then filled with medium bentonite chips and hydrated with 5 gallons of potable water to seal the bioventing well. The remainder of the surface completion was then filled with concrete.

Soil Vapor Monitoring Wells

On May 3, 2018, Wasatch personnel completed soil vapor monitoring well abandonment activities of five soil vapor monitoring wells located at the Pepper River facility near the former waste solvent tank pit. The soil vapor monitoring well locations are presented on Figure 2 Four of the soil vapor monitoring wells (VMW-2 through VMW-5) were less than 30 feet deep; therefore, a licensed well driller was not required to complete the well abandonment activities of these wells. One nested vapor monitoring well (VMW-1) was completed to a depth of 83 feet bgs with four nested stainless-steel soil vapor screens. Given the construction of this soil vapor monitoring well, four 6-inch stainless-steel soil vapor screens attached to ¼-inch outside diameter Teflon tubing that extends to the ground surface, Jim Goddard, well drilling specialist with the Utah Division of Water Rights (DWR), stated that because typical abandonment practices were not feasible. Mr. Goddard stated given the construction of the soil vapor monitoring well, if

Wasatch removed the tubing below the bentonite seal and filled the remainder of the surface completion with concrete that would be satisfactory for well abandonment. Mr. Goddard requested that a licensed well driller complete the well abandonment paperwork for the well. Direct Push Services completed the appropriate well abandonment documents and submitted them to the DWR (see Attachment 1). All soil vapor monitoring wells were abandoned using this technique.

Groundwater Monitoring Wells

On May 15-16, 2018, Wasatch personnel provided oversight of Direct Push Services during the well abandonment activities of the three monitoring wells (MW-1 through MW-3) located at the Pepper River facility. The former groundwater monitoring well locations are presented on Figure 3. All groundwater monitoring well abandonment activities followed applicable regulations, procedures, and standards outlined in the Utah DWR State - Utah Well Handbook, Section R655-4-12.

Groundwater monitoring well MW-1 consisted of a metal stick-up monument with four metal bollards set in concrete surrounded by bare ground. Groundwater monitoring well MW-2 consisted of a metal stick-up monument with two metal bollards set in concrete surrounded by grass. Groundwater monitoring well MW-3 consisted of a metal stick-up monument with two metal bollards set in asphalt.

All groundwater monitoring wells were abandoned using a grout pump and tremie pipe to fill the well casing with a grout (bentonite/Portland cement) mixture from the bottom of the well to the top-of-casing. Each well was allowed a minimum of 2 hours to allow the grout to fall, equilibrate, and seal the well casing. Next, the surface completions were removed, and the well casings were cut off to a depth of two feet bgs. Groundwater monitoring well MW-1 was filled with nearby native soil to the ground surface. Monitoring well MW-2 was filled with soil to the ground surface and seeded with grass to match the surrounding area. Monitoring well MW-3 was filled with concrete until level with the surrounding asphalt.

FORMER WASTE SOLVENT TANK PIT ABANDONMENT ACTIVITIES

The former waste solvent tank pit was abandoned by Okland Construction in early May 2018 (see Figure 2 for the former pit location). David Larson, DWMRC project manager, approved the submitted plan for abandonment in an email dated April 19, 2018. Pit abandonment proceeded as follows: First, all the joints, cracks, and penetrations of the pit were sealed with a high-strength epoxy. Next, the pit was filled with pea gravel and capped with 4 inches of 4,000 pounds per square inch (PSI) air entrained concrete. The joints of the concrete and the perimeter of the pad where the old and the new concrete meet are planned to be sealed, with Sikaflex sealer, to prevent future infiltration of water into the pit.

See Attachment 2 for a photolog of well and former waste solvent tank pit abandonment activities.

CONCLUSIONS

In May 2018, Wasatch and Direct Push Services personnel completed all bio-venting and monitoring well abandonment and site restoration activities at the facility. Additionally, Okland Construction completed the former waste solvent tank pit abandonment under Wasatch's oversight.

Our services consist of professional opinions and recommendations made in accordance with generally accepted environmental engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

Should you have any questions, please do not hesitate to contact us.

Sincerely,

WASATCH ENVIRONMENTAL, INC.

Blake Downey, P.G.
Project Hydrogeologist

FIGURES

Figure 1 – Abandoned Bio-Venting Well Location Map
Figure 2 – Abandoned Soil Vapor Monitoring Well and Waste Solvent Tank Pit Location Map
Figure 3 – Abandoned Groundwater Monitoring Well Location Map

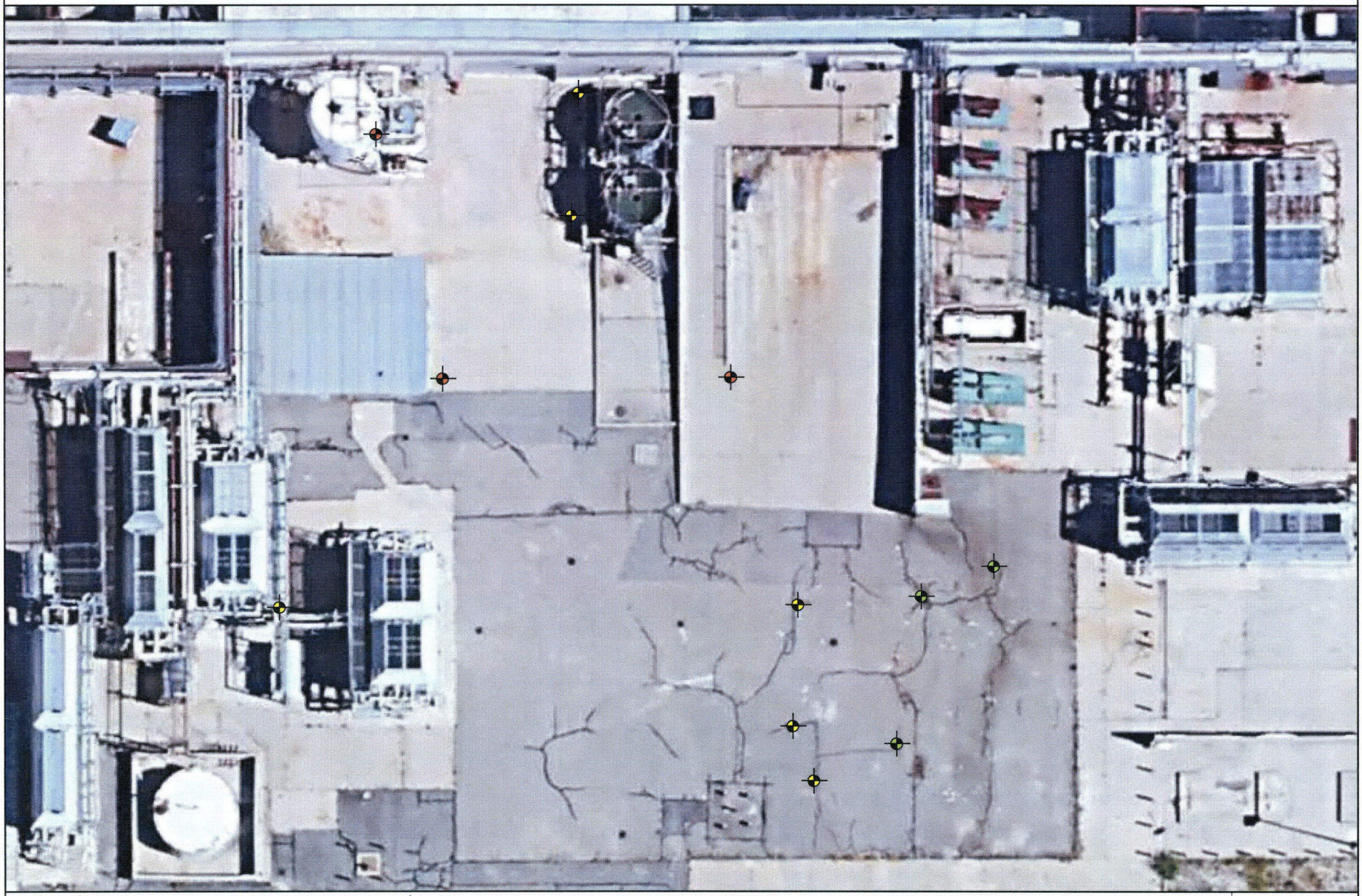
ATTACHEMENTS

Attachment 1 – Utah Division of Water Rights Documents
Attachment 2 – Photolog

Copies: (1) Addressee
(1) David Larsen, DWMRC

Figures

Pepper River Project WEI 1673-011I



Triple Nested Bio-Venting Well Location

Single Bio-Venting Well Location

Previously Abandoned Bio-Venting Well Location

Scale: 1-inch equals approximately 24'

Abandoned Bio-Venting Well Location Map

Figure 1

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Abandoned Soil Vapor Monitoring Well Location

Abandoned Soil Vapor Monitoring Well and Waste Solvent Tank Pit Location Map

Figure 2

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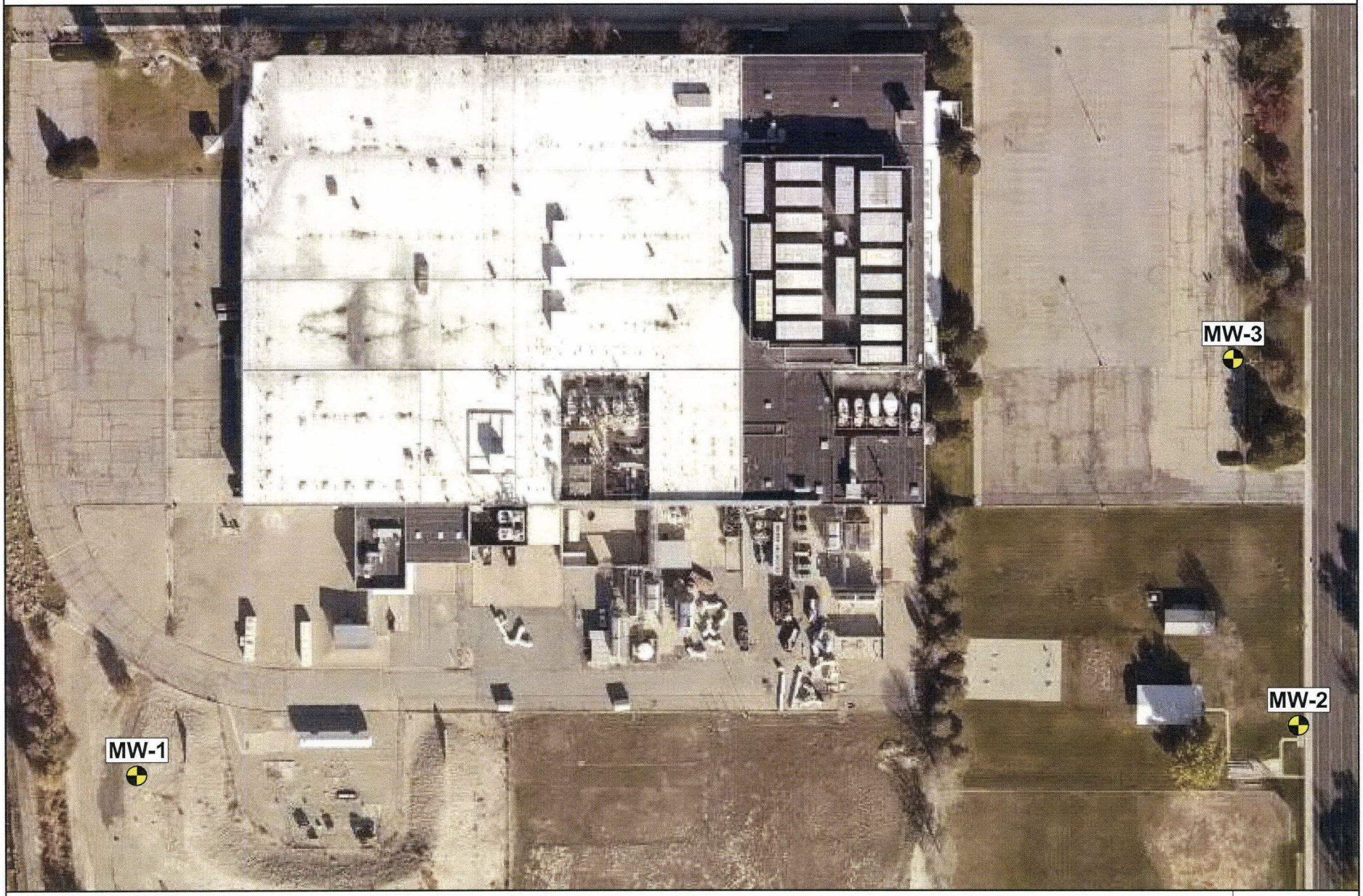
Pepper River Project WEI 1673-011I



Abandoned Groundwater Monitoring Well Location

Scale: 1-inch equals approximately 120'

Abandoned Groundwater Monitoring Well Location Map

Figure 3

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Attachment 1

Utah Division of Water Rights Documents

WELL ABANDONMENT REPORT
State of Utah
Division of Water Rights

Well Identification

Non-Production Well: 1759010M00 WIN: 441464

Owner *Note any changes*

ALIGNED ENERGY
60 BACKUS AVENUE
DANBURY, CT 06810

Contact Person/Engineer: Blake Downey

Well Location *Note any changes*

S 840 W 585 from the E4 corner of section 05, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Existing Well Details

Is a Well Driller's Report Available? ☒ Yes ☐ No

Well Depth 83' feet Well Diameter 1/4" inches

Nature of Use: ☐ Dom. ☐ Irr. ☐ Stock ☐ Industrial ☐ Commercial ☐ Municipal ☒ Monitor ☐ Other

Casing Type: ☐ Steel ☒ Stainless Steel ☐ PVC ☐ Fiberglass ☐ ABS ☐ SR ☐ Other

Openings: ☒ Screen ☐ Perforations ☐ Open Pipe Screen/Perforation Interval 82-82.5 / 64-63.5 / 39-39.5 / 15-15.5

Filter Pack? ☐ Yes ☐ No Depth of Surface Seal ~~[illegible]~~ 14' feet

Static Water Level feet Flowing Well? ☐ Yes ☒ No

Other Details (if known)

Abandonment Details

Date of Abandonment 5/3/2018

Reason for Abandonment No longer needed

Method of Abandonment (Include a description of the seal placement and procedures, amount of casing/screen removed, pump/piping removal, termination of casing at the surface, problems encountered, and other pertinent information).

Wasatch Inc Removed the Nylon 1/4" tubing by pulling from the surface until tubing separated from the 6" stainless steel screens, packed down the Bentonite at the surface and filled the opening with Neat Cement. Flush mount was left in place but will be removed during construction

DEPTH (feet) FROM	TO	ABANDONMENT MATERIAL USED	Quantity of Material Used (e.g., cubic yards, lbs)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	2'	Neat Cement	50 lbs	50 lbs / 4 gal water

Location of a new well (if present) is _____ ft north/south and _____ ft east/west from the abandoned well.

Well Driller Statement This well was abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name DIRECT PUSH SERVICES, LLC (Person, Firm, or Corporation Print or Type) License No. 807

Signature [signature] (Licensed Well Driller) Date 6/6/18

Abandonment

WELL ABANDONMENT REPORT
State of Utah
Division of Water Rights

Well Identification

Non-Production Well: 9759003M00 WIN: 15218

Owner *Note any changes*

Fairchild Semiconductor c/o CH2M Hill
4001 South 700 East Suite 780
SLC, UT 84107

Contact Person/Engineer: _____

Well Location *Note any changes*

N 2000 W 200 from the SE corner of section 05, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Existing Well Details

Is a Well Driller's Report Available? ☒ Yes ☐ No

Well Depth 145 feet Well Diameter 2" inches

Nature of Use: ☐ Dom. ☐ Irr. ☐ Stock ☐ Industrial ☐ Commercial ☐ Municipal ☒ Monitor ☐ Other _____

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC ☐ Fiberglass ☐ ABS ☐ SR ☐ Other _____

Openings: ☒ Screen ☐ Perforations ☐ Open Pipe Screen/Perforation Interval 125-145

Filter Pack? ☒ Yes ☐ No Depth of Surface Seal 127 feet

Static Water Level _____ feet Flowing Well? ☐ Yes ☐ No

Other Details (if known) _____

Abandonment Details

Date of Abandonment 5/16/18

Reason for Abandonment No longer monitored

Method of Abandonment (Include a description of the seal placement and procedures, amount of casing/screen removed, pump/piping removal, termination of casing at the surface, problems encountered, and other pertinent information).

Used grout plant & pump to mix and pump Neat cement from the bottom up. Removed surface completion (4x4x5 Riser & Bollards) with a mini excavator. Restored the surface to match the existing ground cover.

DEPTH (feet)		ABANDONMENT MATERIAL DETAILS		
FROM	TO	ABANDONMENT MATERIAL USED	Quantity of Material Used (e.g., cubic yards, lbs)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	145	Neat Cement (portland)	653 lbs	653 lbs / 44 gal

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MAY 29 2018 KH
WATER RIGHTS
SALT LAKE

Location of a new well (if present) is _____ ft north/south and _____ ft east/west from the abandoned well.

Well Driller Statement

This well was abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name DIRECT PUSH SERVICES, LLC (Person, Firm, or Corporation - Print or Type) License No. 807

Signature [signature] (Licensed Well Driller) Date 5/29/18

Abandonment

WELL ABANDONMENT REPORT
State of Utah
Division of Water Rights

Well Identification

Non-Production Well: 9759003M00 WIN: 15219

Owner *Note any changes*

Fairchild Semiconductor c/o CH2M Hill
4001 South 700 East Suite 780
SLC, UT 84107

Contact Person/Engineer: _____

Well Location *Note any changes*

N 2200 W 200 from the SE corner of section 05, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Existing Well Details

Is a Well Driller's Report Available? ☒ Yes ☐ No

Well Depth 125' feet Well Diameter 2" inches

Nature of Use: ☐ Dom. ☐ Irr. ☐ Stock ☐ Industrial ☐ Commercial ☐ Municipal ☒ Monitor ☐ Other _____

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC ☐ Fiberglass ☐ ABS ☐ SR ☐ Other _____

Openings: ☒ Screen ☐ Perforations ☐ Open Pipe Screen/Perforation Interval 105' - 125

Filter Pack? ☒ Yes ☐ No Depth of Surface Seal 107 feet

Static Water Level _____ feet Flowing Well? ☐ Yes ☐ No

Other Details (if known) _____

Abandonment Details

Date of Abandonment 5/15/18

Reason for Abandonment No longer monitored

Method of Abandonment (Include a description of the seal placement and procedures, amount of casing/screen removed, pump/piping removal, termination of casing at the surface, problems encountered, and other pertinent information).

Used a grout plant & pump to mix & pump neat cement from the bottom up. Removed surface completions (4x4x5 riser & bollards) with a mini BC and terminated the well casing at 2'. Restored the surface to match the existing grand cover.

DEPTH (feet)		ABANDONMENT MATERIAL DETAILS		
FROM	TO	ABANDONMENT MATERIAL USED	Quantity of Material Used (e.g., cubic yards, lbs)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	125'	Neat Cement (portland)	560 lbs	560 lbs / 35 gal

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MAY 29 2018
WATER RIGHTS
SALT LAKE

Location of a new well (if present) is _____ ft north/south and _____ ft east/west from the abandoned well.

Well Driller Statement This well was abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name DIRECT PUSH SERVICES, LLC (Person, Firm, or Corporation - Print or Type) License No. 807

Signature _____ (Licensed Well Driller) Date 5/29/18

Abandonment

WELL ABANDONMENT REPORT
State of Utah
Division of Water Rights

Well Identification

Non-Production Well: 9759003M00 WIN: 15220

Owner *Note any changes*

Fairchild Semiconductor c/o CH2M Hill
4001 South 700 East Suite 780
SLC, UT 84107

Contact Person/Engineer: _____

Well Location *Note any changes*

N 2100 W 1100 from the SE corner of section 05, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Existing Well Details

Is a Well Driller's Report Available? ☒ Yes ☐ No

Well Depth 125 feet Well Diameter 2 inches

Nature of Use: ☐ Dom. ☐ Irr. ☐ Stock ☐ Industrial ☐ Commercial ☐ Municipal ☒ Monitor ☐ Other _____

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC ☐ Fiberglass ☐ ABS ☐ SR ☐ Other _____

Openings: ☒ Screen ☐ Perforations ☐ Open Pipe Screen/Perforation Interval 105 - 125

Filter Pack? ☒ Yes ☐ No Depth of Surface Seal 107 feet

Static Water Level _____ feet Flowing Well? ☐ Yes ☐ No

Other Details (if known) _____

Abandonment Details

Date of Abandonment 5/15/18

Reason for Abandonment No longer monitored

Method of Abandonment (Include a description of the seal placement and procedures, amount of casing/screen removed, pump/piping removal, termination of casing at the surface, problems encountered, and other pertinent information).

Used grout plant & mixer to mix and pump neat cement from the bottom up. Removed surface completion (4x4x5 Rebar w Bollards) with a mini excavator and terminated the well casing at 2' below surface. Reshaped surface to match existing grade cover

DEPTH (feet)		ABANDONMENT MATERIAL DETAILS		
FROM	TO	ABANDONMENT MATERIAL USED	Quantity of Material Used (e.g., cubic yards, lbs)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	125	Neat Cement (Portland)	560 lbs	560 lbs / 35 gal

RECEIVED
MAY 29 2018
WATER RIGHTS
SALT LAKE

Location of a new well (if present) is _____ ft north/south and _____ ft east/west from the abandoned well.

Well Driller Statement

This well was abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name DIRECT PUSH SERVICES, LLC (Person, Firm, or Corporation - Print or Type) License No. 807

Signature _____ (Licensed Well Driller) Date 5/29/18

Abandonment

Attachment 2

Photolog

Photo 1 – Typical bio-venting wells prior to abandonment

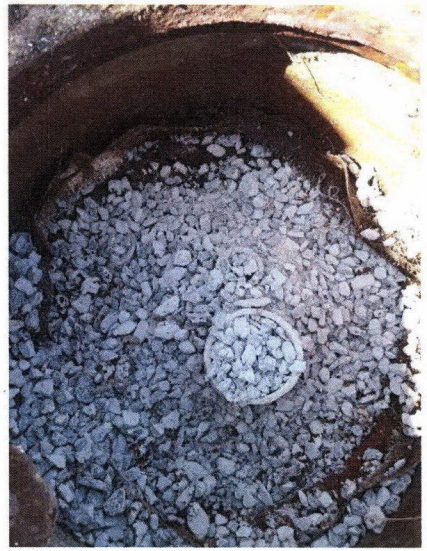

Photo 2 – Typical bio-venting wells filled with bentonite

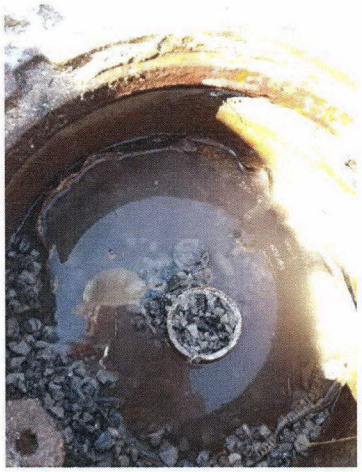

Photo 3 – Typical bio-venting wells with hydrated bentonite

Photo 4 – Typical bio-venting well post well abandonment and concrete surface restoration

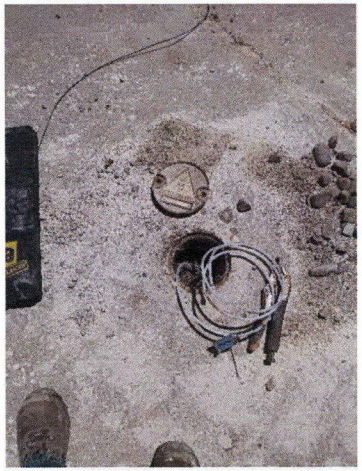

Photo 5 – Typical soil vapor monitoring well prior to abandonment

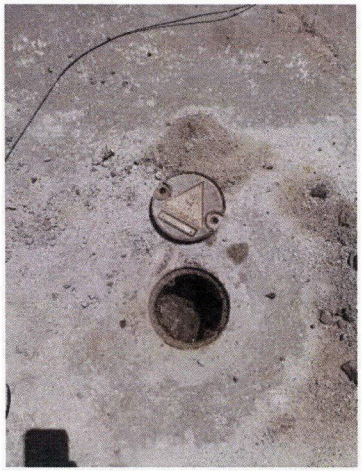

Photo 6 – Typical soil vapor monitoring well with tubing removed below bentonite seal

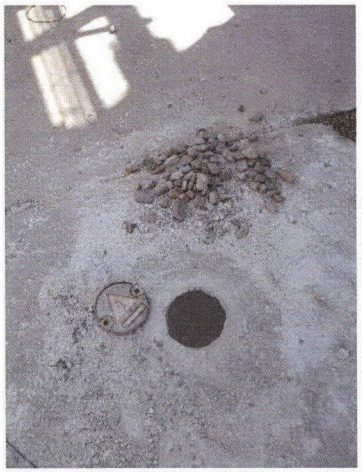

Photo 7 – Typical soil vapor monitoring well post well abandonment

Photo 8 – MW-3 prior to well abandonment

Photo 9 – Grout pump system used to fill each monitoring well with bentonite/Portland cement grout (at MW-2)

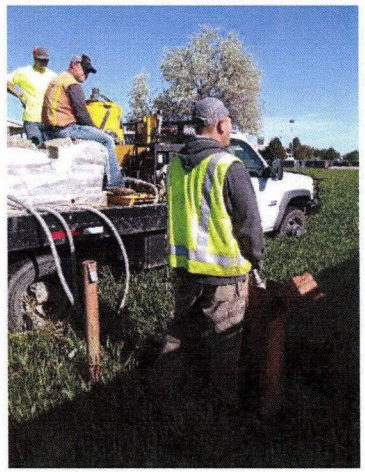

Photo 10 – Typical tremie pipe grout placement

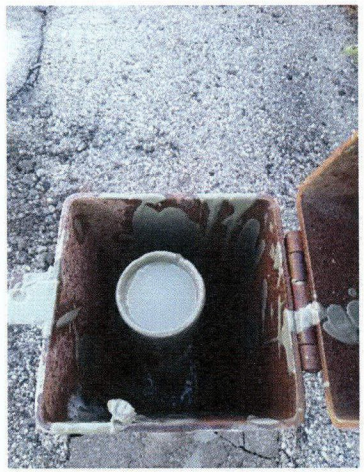

Photo 11 – Typical groundwater monitoring well filled with grout

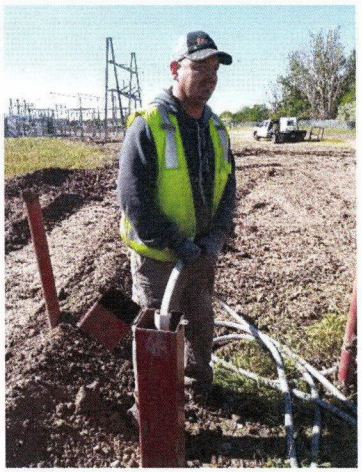

Photo 12 – Grout placement at MW-1

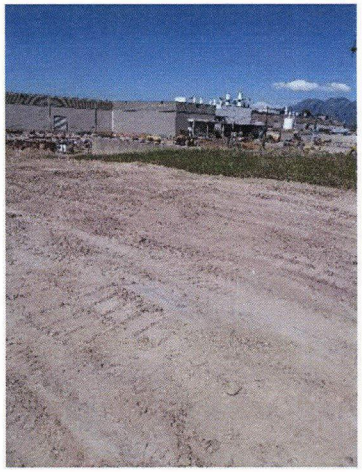

Photo 13 – MW-1 post well abandonment

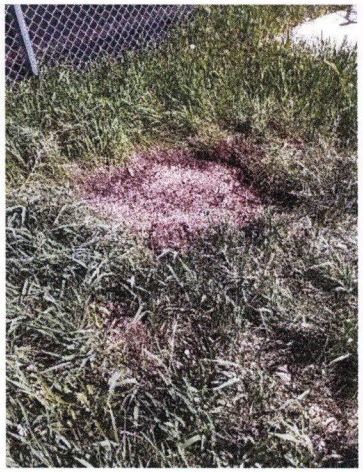

Photo 14 – MW-2 post well abandonment

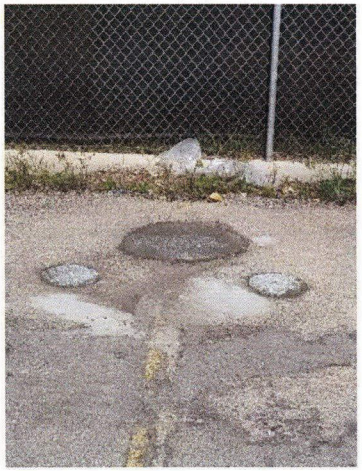

Photo 15 – MW-3 post well abandonment

Photo 16 – Former waste solvent tank pit filled with pea gravel

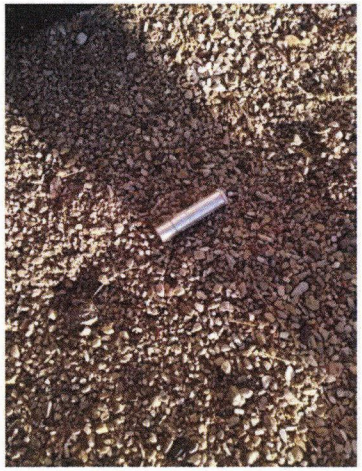

Photo 17 – Pea gravel size compared to a ChapStick® container

Photo 18 – Placement of the concrete seal on the former waste solvent tank pit

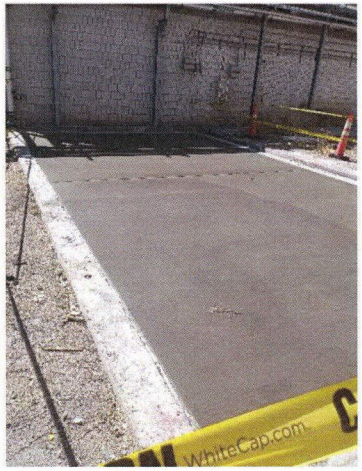

Photo 19 – Former waste solvent tank pit with concrete cap in place