

THE CHURCH OF  
**JESUS CHRIST**  
OF LATTER-DAY SAINTS

**FINANCE & RECORDS DEPARTMENT**

Risk Management Division  
50 E. North Temple St. COB 16  
Salt Lake City Utah 84150-3630  
Phone: 801-240-4049

Douglas J. Hansen - Director  
Division of Waste Management and Radiation Control  
195 North 1950 West  
Salt Lake City, UT 84114-4810

**RECEIVED**

By Division of Waste Management and Radiation Control at 3:52 pm, Aug 25, 2023

**DSHW-2023-208500**

August 25, 2023

Dear Mr. Hansen,

Please find attached the site management plan that represents requested changes submitted for the Murray DI Site (4485 S Main St, Murray). We greatly appreciate the guidance that we have received from your team to submit the plan.

We look forward to continuing to work with your team as we take the next steps for the site management plan.

Please feel free to contact me with any questions or concerns.

Kind regards,



Nate Spencer CSP CIH MS  
Chief Safety & Health Officer  
Office (801)240-7550 | Mobile (801)330-1716

Enclosed:  
61207244 SM update 082423.pdf

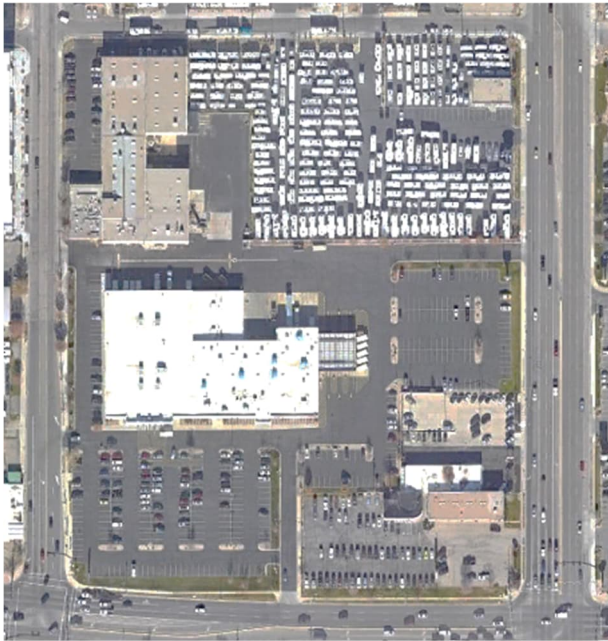
# Site Management Plan

Murray Deseret Industries

4485 South Main Street

Murray, Utah

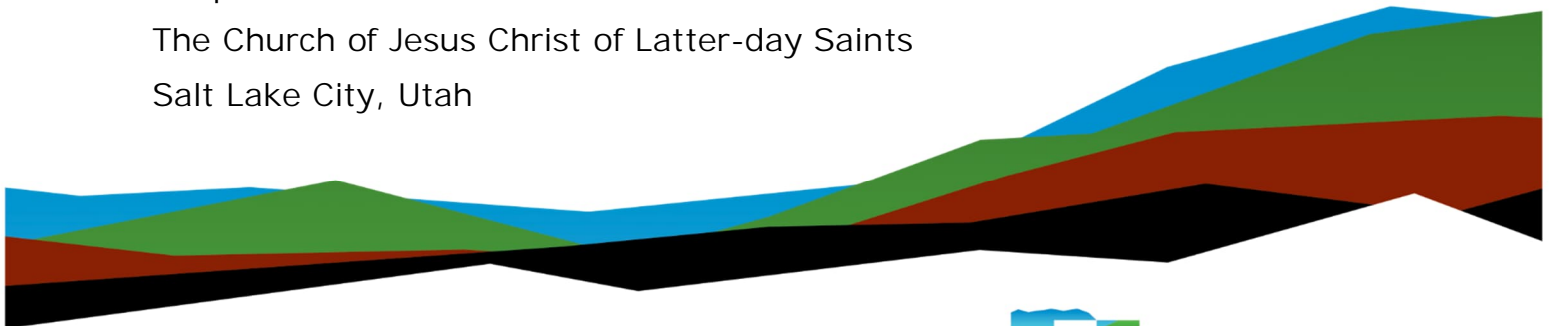
August 24, 2023 | Terracon Project No. 61207244



Prepared for:

The Church of Jesus Christ of Latter-day Saints

Salt Lake City, Utah



Nationwide  
[Terracon.com](https://www.terracon.com)

- Facilities
- Environmental
- Geotechnical
- Materials



6949 South High Tech Drive  
Midvale, Utah 84057  
P (801) 545-8500  
[Terracon.com](http://Terracon.com)

August 24, 2023

The Church of Jesus Christ of Latter-day Saints  
50 East North Temple Street  
Salt Lake City, Utah 84150

Attn: Mr. Nathan H. Spencer  
Chief Safety and Health Officer  
Risk Management Division  
P: 801-240-7550  
E: [SpencerNH@ChurchofJesusChrist.org](mailto:SpencerNH@ChurchofJesusChrist.org)

RE: Site Management Plan  
Murray Deseret Industries  
4485 South Main Street  
Murray, Utah  
Terracon Project 61207244

Dear Mr. Spencer:

Terracon is pleased to provide this Site Management Plan (SMP) for the above-referenced facility. This SMP prescribes site management actions based on the Risk Evaluation (Terracon, December 22, 2022), which has been approved by the Utah Department of Environmental Quality (UDEQ), Division of Waste Management and Radiation Control (DWMRC, also referred to by the agency as the Division).

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further assistance, please contact Andy King at (801) 746-5462.

Sincerely,  
Terracon Consultants, Inc.

Andy King, P.G.  
Senior Project Manager-Environmental

Amy B. Austin  
Authorized Project Reviewer



## TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Scope .....	1
1.2	Site Background.....	1
1.3	Remaining Impacted Media.....	3
1.3.1	Soil .....	3
1.3.2	Groundwater .....	4
1.3.3	Soil Gas .....	4
2.0	RISK EVALUATION .....	4
3.0	SITE MANAGEMENT .....	8
3.1	Groundwater Use Restrictions .....	8
3.2	Land Use Controls .....	8
3.3	Notifications .....	9
3.4	Environmental Covenant .....	9
4.0	GROUNDWATER MONITORING AND MITIGATION .....	10
5.0	REFERENCES .....	10

## APPENDICES

[Appendix A](#) Exhibit 1: Site Diagram

## 1.0 INTRODUCTION

### 1.1 Scope

This Site Management Plan (SMP) describes site management actions for the Murray Deseret Industries (Murray DI) site in Murray, Utah. This SMP is based on the results of a Risk Evaluation (Terracon, 2022), which was approved by the Utah Department of Environmental Quality (UDEQ), Division of Waste Management and Radiation Control (DWMRC, also referred to by the agency as the Division) in correspondence dated February 27, 2023.

The site includes the Murray DI facility and associated parking lots located at 4485 South Main Street in Murray, Utah. Several down-gradient properties to the north that have also been included in site investigation and monitoring activities since the 1990s. Pertinent site and vicinity features are illustrated in Exhibit 1 ([Appendix A](#)).

The site management actions described in this SMP are designed to control exposure to residual chemical constituents that are locally present in soil, groundwater, and/or soil vapor beneath portions of the site, such that human health risks from these constituents are maintained at levels within the acceptable range as defined by UDEQ.

### 1.2 Site Background

The site includes a 60,900-square-foot commercial building and associated parking and access areas on five parcels totaling 7.15 acres. Legal descriptions for the five parcels that comprise the site are as follows:

- *Parcel 22061520290000* - BEG N 0DEG 04' E 314.4 FT & S 89DEG 52'45" W 338 FT FR SE COR LOT 1, BLK 9, 10 AC PLAT A, BIG FIELD SUR; N 0DEG 04' E 150.4 FT; S89DEG 52'45" W 16 FT; N 38DEG 21'25" W 115.85 FT; N 0DEG 04' E 73 FT; S 89DEG 52'45" W 300 FT M OR L; S 0DEG 04' W 170.2 FT M OR L; N 89DEG 56' E 9.50 FT; S 0DEG 04' W 142.66 FT M OR L; E 378 FT M OR L TO BEG. 2.84 AC M OR L. 4994-0580 6374-1391
- *Parcel 22061520210000* - BEG N 0DEG 04' E 381.90 FT FR SE COR OF LOT 1, BLK 9, 10 AC PL A, BF SUR; S 89DEG 36' W 182.30 FT; S 0DEG 26'12" W 67.50 FT; S 89DEG 52'45] W 155.26 FT M OR L; N 0DEG 04' E 150.40 FT; S 89DEG 52'45" W 16 FT; N 38DEG 21'25" W 115.83 FT; N 0DEG 04' E 73 FT; N 89DEG 52'45" E 426 FT; S 0DEG 04' W 246.90 FT M OR L TO BEG. 2.39 AC M OR L. 9476-0645
- *Parcel 22061520300000* - BEG N 0DEG 04' E 225.3 FT & N 89DEG 36' E 15.78 FT M OR L FR SW COR LOT 1, BLK 9, 10 AC PLAT A, BIG FIELD SUR; N 0DEG 04' E 38.83 FT M OR L; N 89DEG 56' W 6.00 FT; N 0DEG 04' E 36.21 FT M OR L; N 89DEG 36' E 328.05 FT M OR L; S 0DEG 04' W 75.1 FT; S 89DEG 36' W 322.22 FT M OR L TO BEG. 0.56 AC M OR L. 9834-6747
- *Parcel 20630100300000* - BEG N 0DEG 04' E 110.18 FT M OR L & S 89DEG 42'34" E 15.5 FR SW COR LOT 1, BLK 9, 10 AC PLAT A, BIG FIELD SUR; N 0DEG 04' E 115.13 FT M

OR L; N 89DEG 36' E 322.22 FT M OR L; S 0DEG 04' W 150.20 FT; S 89DEG 36' W 206.67 FT M OR L; N 85DEG 53' 53" W 97.03FT; N 35DEG 22'17" W 33.06 TO BEG. 1.09 AC M OR L. 2828-0115 4072-0143 7920-793 10313-6410

- *Parcel 22061520230000* - BEG N 00DEG 04'00] E 225.30 FT & S 89DEG 36'00] W 183.32 FT & N 0DEG 26'12] E 3.98 FT FR SE COR OF LOT 1, BLK 9, 10 AC PL A, BFSUR; S 89DEG 34'18" W 154.71 FT; N 00DEG 04'00" E 75.10 FT; N 89DEG 36'00" E 155.17 FT; S 00DEG 26'12" W 75.11 FT TO BEG. LESS & EXCEPT BEG N 00DEG 04'00" E 225.30 FT & S 89DEG 36'00" W 183.32 FTFR SE COR OF LOT 1, BLK 9, 10 AC PL A, BF SUR; S 89DEG 36'00] W 7.09 FT; N 0DEG 24'00" W 0.53 FT; S 89DEG 59'44" E 7.10 FT; S 0DEG 26'12" W 0.48 FT TO BEG. 0.27 AC M OR L. 9476-0641,0648.

Zoning is designated C-D (Commercial Development) at the site and surrounding area, including several properties that are underlain by previously identified impacts to groundwater and/or soil. Land use in the area down-gradient of the facility previously included a mix of commercial/light industrial and residential usage. Nine homes previously existed on down-gradient properties along Edison Street and Fireclay Avenue, and since 2016 all but one of these have been demolished and replaced by paved RV parking areas and two commercial buildings as part of an expanding RV dealership.

The site has operated as a Deseret Industries thrift store since the 1950s. As part of its operations, the Murray DI facility operated a dry-cleaning facility from the 1970s through approximately 1992. In 1991, IHI Environmental (IHI) conducted a subsurface investigation of a suspected tetrachloroethene (PCE) release identified during previous underground storage tank (UST) closure activities. Several subsequent investigations were completed between 1995 and 2006. Release response actions have been overseen by the UDEQ/DWMRC (previously known as the Division of Solid and Hazardous Waste [DSHW]).

The primary contaminant of concern (COC) and source of the identified impacts at the site was identified as PCE. Degradation byproducts of PCE that were also identified as COCs include several other volatile organic compounds (VOCs) including trichloroethylene (TCE), vinyl chloride (VC), and cis and trans 1,2-dichloroethene (cis and trans 1,2-DCE).

In 2006, the former Murray DI building was demolished, and a new Murray DI building was subsequently constructed approximately 140 feet north of the former building location. The building demolition enabled the removal of impacted soils that were acting as secondary source material for ongoing groundwater contamination. The soil excavation activities were conducted between August and November 2006 and entailed removal of 12,308 tons of impacted soil for off-site disposal.

Construction of the new Deseret Industries building was completed in 2007 with a vapor mitigation system installed during its construction. The Murray DI currently operates as a commercial facility with vocational rehabilitation services and a thrift store.

In August 2006 and again in March 2007, IHI conducted indoor air monitoring for COCs at three then-occupied homes along Edison Avenue (62, 64, and 63 East Edison Avenue) to

assess whether the homes were impacted by vapor intrusion from the underlying plume of impacted groundwater. At each of the three residences, air samples were collected for approximately 8-hours from the basements and from the ground floor levels. The results detected PCE but no other COCs in any of the samples. The reported PCE values ranged from 4.8 to 9.8 micrograms per cubic meter ( $\text{ug}/\text{m}^3$ ), which is below the current target indoor air values of 11  $\text{ug}/\text{m}^3$  (residential) and 47  $\text{ug}/\text{m}^3$  (commercial/industrial). All three of these homes were removed by early 2017 and replaced by paved RV parking areas.

After the 2006 soil removal, IHI and subsequently Terracon conducted multiple investigations between 2008 and 2022 to delineate the extent of COCs in soil and groundwater, monitor their concentrations in groundwater, and assess soil gas for potential vapor intrusion concerns. The results of these investigations did not indicate the presence of COC concentrations in off-site soils at or above residential screening levels. Only two remaining COC exceedances of residential (but not industrial/commercial) screening levels were identified in on-site soils, both at depths of 25 and 30 feet (located below the floor of the 2006 soil removal excavation which had reached an average depth of 21 feet). The dissolved COC plume in groundwater was found to have migrated beyond the Murray DI property boundary and stabilized in its current location, where concentrations have been decreasing since at least 2009. The accumulated results of ten rounds of groundwater monitoring showed that dissolved PCE concentrations in groundwater have decreased significantly and/or stabilized at most monitoring wells, although dissolved PCE and TCE concentrations remained above drinking water maximum contaminant levels (MCLs) and Vapor Intrusion Screening Levels (VISLs) within the main body of the plume. Subsurface soil gas sampling in 2022 identified VOC concentrations that were below residential and/or commercial VISLs at all but one of the five soil gas sampling locations along the axis of the dissolved COC plume.

### 1.3 Remaining Impacted Media

The 2006 removal action effectively removed the most highly impacted soils and led to the observed reduction of contaminant concentrations in groundwater over time. Residual impacts to soil, groundwater, and soil gas are summarized below.

#### 1.3.1 Soil

The results from previous soil sampling events indicate that the remaining soil impacts are below the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs), with two isolated exceptions that are controlled by site conditions.

Prior to the 2006 soil removal activity, soil samples collected within the excavated area reported PCE and TCE exceedances of RSLs for residential and industrial/commercial land use. Subsequent soil samples, both from confirmation sampling during the 2006 soil removal and from follow-up soil borings in the area, indicated no off-site exceedances of either residential or industrial RSLs and two isolated on-site exceedances of residential RSLs. Both of these exceedances of residential RSLs remained below the depth of the 2006 soil removal

excavation at depths of 25 feet (TCE only) and 30 feet (PCE only), and the new Murray DI building was constructed over the locations of both exceedances.

### 1.3.2 Groundwater

Groundwater in the area typically flows to the northeast and occurs within a depth range of approximately 9 to 11 feet below grade surface (bgs). Previous groundwater monitoring events have delineated the dissolved VOC plume, which extends up to approximately 900 feet toward the northeast from the Murray DI facility. Big Cottonwood Creek is located approximately 350 feet farther north and has not been affected by the plume. Contaminant concentrations within the plume have substantially decreased since the 2006 soil removal activity. Statistical evaluation of the accumulated data as of December 2019 using Mann-Kendall analyses indicated that the PCE and TCE concentrations at the majority of monitoring wells within the main body of the plume had decreased significantly or stabilized but remained above MCLs and VISLs within the plume interior (Terracon Consultants, 2020).

### 1.3.3 Soil Gas

Soil gas samples were collected in 2022 at five locations that were selected to represent reasonable worst-case conditions based on relatively higher PCE concentrations in groundwater and proximity to buildings. These soil gas samples were analyzed for VOCs including, but not limited to, the site's established COCs (PCE, TCE, VC, cis 1,2-DCE, and trans 1,2-DCE). The analyses did not detect VC, cis 1,2-DCE, or trans 1,2-DCE in any of the samples. The concentrations of detected soil gas VOCs were below residential and commercial VISLs at all but one of the five sampling locations. The VISL exceedances were identified for PCE (commercial), TCE (residential), and ethylbenzene (residential) in one sample that was collected near the location of the maximum concentration of PCE in groundwater.

## 2.0 RISK EVALUATION

This section summarizes the results of the Risk Evaluation, which was prepared by Terracon and approved by DWMRC in correspondence dated February 27, 2023. Details of the risk evaluation procedures and results are provided in the Risk Evaluation report (Terracon Consultants, 2022).

The Risk Evaluation focused primarily on evaluating the potential for adverse human health effects (both carcinogenic risk and non-carcinogenic hazard index) resulting from exposure to vapors from the underlying plume of VOC-impacted groundwater. Potential adverse effects from vapors were evaluated directly from the VOC concentrations that were measured in the soil gas samples. Potential adverse effects were also estimated indirectly from the maximum dissolved constituent concentrations in groundwater from the most recent monitoring event.

As requested by DWMRC, additional routes of exposure were evaluated for the affected media and potential receptors as follows:

Soil Routes of Exposure: Construction worker ingestion of soil, inhalation of vapor emissions and particulates, and dermal contact were the primary routes of exposure



considered for soil. As the commercial workers and any remaining residents in the area do not have direct access to subsurface soil, these routes of exposure are not complete pathways for these receptors. However, as requested by DWMRC to provide a conservative evaluation, they were also included for a resident in the Risk Evaluation for soils down to a depth of 10 feet bgs, consistent with evaluation of the construction worker in an excavation. These routes of exposure were evaluated using the EPA's online RSL calculator.

**Groundwater Routes of Exposure:** Inhalation of vapors in indoor air from vapor intrusion into buildings was the only route of exposure considered for groundwater for commercial workers and any remaining residents in the area. With no direct access to groundwater, ingestion and dermal contact are not complete pathways for these receptors. Vapor intrusion exposure routes from groundwater routes were evaluated using the EPA's online VISL calculator. For a construction worker in an excavation or trench where groundwater is uncovered, potential exposure routes including inhalation of vapors emanating from groundwater, incidental ingestion, and dermal contact with groundwater were evaluated. As recommended by DWMRC, these exposure routes for the construction worker were evaluated using VURAM software (Virginia Department of Environmental Quality, 2022), which includes an appropriate Trench Model.

**Soil Vapor Routes of Exposure:** Inhalation of vapors in indoor air from vapor intrusion into buildings is the only potentially complete exposure pathway associated with soil vapor. This pathway was evaluated for commercial land use at each of the five soil gas sampling locations and was also evaluated for residential use at the soil gas sampling location (SV-1) adjacent to the one remaining home in the area. The vapor intrusion pathway was evaluated using the EPA's online VISL calculator and the site-specific soil gas analytical results. A second and more conservative evaluation was also conducted using the EPA's online VISL calculator with the maximum dissolved constituent concentrations in groundwater from the most recent monitoring event.

Under Utah Administrative Code R315-101, cancer risks below one in one million ( $1 \times 10^{-6}$ ) are considered *de minimis*. Risks greater than one in ten thousand ( $1 \times 10^{-4}$ ) normally require that site management actions include corrective action. Corrective action is a discretionary component of site management when the cancer risk is between  $1 \times 10^{-6}$  and  $1 \times 10^{-4}$ . The hazard index (HI) compares the potential exposure that could occur to an estimate of the potential exposure necessary to cause non-cancer health effects in humans. A HI greater than 1 typically requires corrective action as a component of site management. However, as requested by DSHW, the evaluation of vapor exposure risks and hazards included the use of maximum groundwater concentrations in addition to the actual measured soil gas concentrations. This approach introduces highly conservative assumptions that tend to overestimate site risk and hazards. Nonetheless, these criteria provide a useful interpretive framework.

Tables 1 and 2 below summarize the results from the EPA's software for risk calculations by vapor intrusion at each of the five soil gas sampling locations, first based on soil gas concentrations and secondly based on maximum groundwater concentrations.

Table 1

Risk and Hazard Levels Based on Soil Gas (Vapor Intrusion)

Soil Gas Sample Location	Carcinogenic Risk (Commercial)	Non-Carcinogenic HI (Commercial)
SV-1	1.19E-07	1.65E-02
SV-2	2.36E-06	5.94E-01
SV-3	5.70E-07	1.23E-02
SV-4	4.70E-07	6.76E-02
SV-5	3.94E-07	1.97E-03
Soil Gas Sample Location	Carcinogenic Risk (Residential)	Non-Carcinogenic HI (Residential)
SV-1	5.22E-07	6.94E-02

Table 2

Risk and Hazard Levels Based on Groundwater (Vapor Intrusion)

Groundwater Sample Location	Carcinogenic Risk (Commercial)	Non-Carcinogenic HI (Commercial)
GW-10R (adjacent to soil gas sample SV-1)	3.12E-06	9.48E-01
GW-12 (adjacent to soil gas sample SV-2)	3.33E-06	8.37E-01
GW-8R (adjacent to soil gas sample SV-3)	7.58E-07	2.28E-01
EWA-8 (adjacent to soil gas sample SV-4)	2.51E-06	8.00E-01
GW-1 (adjacent to soil gas sample SV-5)	8.09E-06	2.25E+00

Groundwater Sample Location	Carcinogenic Risk (Residential)	Non-Carcinogenic HI (Residential)
GW-10R (adjacent to soil gas sample SV-1)	1.65E-05	3.98E+00

As summarized above, the calculated risk and/or HI values from VOC concentrations in groundwater are much higher than the values based on measured soil gas concentrations and exceed the target excess risk level and target HI at most locations. These higher values likely represent an overestimate of risk, as the default groundwater attenuation factor used in the VISL calculator (0.001) assumes a coarse soil type whereas the actual soil types in the area are predominantly fine soils (e.g., clays and silts).

Table 3 (below) summarizes the results from the EPA's RSLs calculator for the construction worker and resident scenarios (for soils in a hypothetical excavation to a depth of 10 feet), and the VURAM software for construction worker exposure to groundwater in the same trench (based on maximum concentrations in groundwater).

Table 3

Risk and Hazard Levels Based on Soil and Groundwater in a 10-foot Excavation

Scenario	Carcinogenic Risk (Commercial)	Non-Carcinogenic HI (Commercial)
Construction Worker (for Soil in Excavation [RSLs Calculator])	1.37E-09	9.81E-03
Construction Worker (for Groundwater in Excavation [VURAM])	2.00E-06	1.48E+01
Scenario	Carcinogenic Risk (Residential)	Non-Carcinogenic HI (Residential` )
Resident (for Soil in Excavation)	7.03E-08	1.02E-2 (child) 8.93E-3 (adult)

As summarized above, the target excess carcinogenic risk level of  $1 \times 10^{-6}$  and the target HI of 1 are both exceeded for a construction worker exposed to groundwater in an excavation. The exceedances of target risk and HI are due to inhalation of vapors, with negligible contribution from ingestion and no contribution from dermal contact.

## 3.0 SITE MANAGEMENT

### 3.1 Groundwater Use Restrictions

Groundwater in the shallow aquifer beneath portions of the site (typically within a depth range of approximately 9 to 11 feet bgs) may contain elevated concentrations of PCE and related VOC constituents. Because groundwater is not used at the site, associated exposure pathways are not complete. However, if untreated groundwater from the shallow aquifer beneath the site were to be extracted for use, undesired exposure to contaminants could occur.

Therefore, a restriction will be placed to prevent use extraction and use of groundwater from the shallow aquifer for potable, culinary, domestic, commercial or industrial processes, irrigation, livestock watering, or any other purposes other than monitoring or remediation. This restriction will be implemented through an Environmental Covenant on the Murray DI property. Property owners may petition DWMRC to modify or remove the restriction on groundwater use if subsequent evaluations of future groundwater monitoring results demonstrate a decrease of contaminants to concentrations that do not pose a significant health risk.

This paragraph applies to cases in which groundwater is encountered during a normal work activity such as excavation for construction activities or underground utility placement, where groundwater needs to be removed to facilitate that work activity. Groundwater management options are intended to comply with the principles of non-degradation in R315-101-3. If temporary excavation dewatering is needed to facilitate a work activity, groundwater may be temporarily stored and later returned directly to the aquifer from which it originated within the area adjacent to the ongoing work, as long as the return of that groundwater does not meet the criteria of an injection well as defined at Utah Administrative Code R317-7-2.53. Groundwater may also be discharged off-site to a sanitary sewer system with prior approval from the system's Publicly Owned Treatment Works (POTW) and may be discharged off-site to a storm water system with prior approval from the Utah Division of Water Quality.

### 3.2 Land Use Controls

The site and surrounding areas are zoned for commercial/industrial land use. As such, the current zoning precludes residential land use.

In addition to compliance with local zoning requirements, supplemental controls will be established through an environmental covenant to ensure that land use at the Murray DI property remains limited to commercial/industrial where appropriate. Proposed future residential uses, if any, will require demonstration to DWMRC or its successors that risk and hazard levels posed by impacted groundwater, if present at locations proposed for such use, are controlled to meet residential standards.

No specific controls or restrictions are appropriate for soils, based on the lack of remaining soil impacts above applicable screening levels (as described in Section 1.3.1 above).

### 3.3 Notifications

Because of the migration of impacted groundwater beyond the Murray DI property boundaries and the potential for vapor intrusion, owners of affected properties will be notified (or re-notified<sup>1</sup>) of the presence of impacted groundwater in the area. Documentation of property owner notifications will be provided to DWMRC for its records.

Owners of affected properties will be instructed to inform the Murray DI property owner of any planned excavation activities at areas underlain by the impacted groundwater plume. Affected property owners will also be instructed to notify DWMRC either by phone at (801) 536-0200 or in writing at the address (noted below). The Murray DI property owner will then notify the construction contractor(s) of the potential VOC exposure hazard associated with excavation in the affected areas, along with mitigation measures available to control the hazards. Such mitigation measures will prioritize the use of engineering controls (e.g., ventilation and air monitoring at excavations), followed by respiratory protection if permissible exposure levels (PELs) are not attained through engineering controls. It will be the contractors' responsibility to incorporate appropriate mitigation measures into their health and safety programs and ensure worker protection meets the applicable Occupational Safety and Health Administrations (OSHA) requirements.

Division of Waste Management and Radiation Control  
Attention: Brad Lauchnor P.E, P.G. (or current DWMRC Project Manager)  
Utah Department of Environmental Quality  
P.O. Box 144840  
Salt Lake City, Utah 84114-4840

### 3.4 Environmental Covenant

The above site management requirements will be the responsibility of the Murray DI property owner pursuant to an Environmental Covenant. The owner will file and record the Environmental Covenant with reference to this Site Management Plan, providing notice of its obligations concerning site management requirements on the property. Additionally, effective the date that this document is recorded in the Salt Lake County Recorder's Office, each deed, title, or other instrument conveying an interest in the property executed by the owner or its successors in title to the property will include a notice stating that the property is subject to this Site Management Plan and will reference the recorded location of the Site Management Plan and the restrictions applicable to the property under the Site Management Plan. The above site management requirements are intended to follow title to land in perpetuity unless subsequent determinations by DWMRC or its successors indicate that the remaining level of

---

<sup>1</sup> The existing building that overlies the area of maximum detected COC concentrations (4306 South State Street, Advance Auto Parts) was built in 2016 with a vapor intrusion mitigation system (VIMS) integrated into its design and construction. This VIMS was designed by Terracon engineers and installed using industry standard Quality Assurance testing protocols under the supervision of Terracon inspectors.

risk on the site is sufficiently low that the site management requirements may either be reduced or eliminated in their entirety.

## 4.0 GROUNDWATER MONITORING AND MITIGATION

A program of annual groundwater monitoring will be initiated to continue tracking of COC concentrations and assessment of plume behavior. The groundwater monitoring program will employ similar sampling methods and laboratory analyses as were used in previous groundwater monitoring events. During future monitoring events, one groundwater sample will normally be collected and analyzed from each monitoring well. The previous practice of collecting two groundwater samples from selected wells (to assess potential effects on soil gas from groundwater concentration gradients with depth) will be discontinued because measured soil gas concentrations have since become now available.

The network of groundwater monitoring wells was installed in phases from the 1990s to the early 2010s. Over time, the wellheads of many of these have experienced degradation and damage from extended exposure to vehicle and equipment traffic, and several wells have been destroyed during demolition and redevelopment activities in the area. Ongoing groundwater monitoring will require upgrading the existing monitoring well network with repair and/or replacement of monitoring wells at critical locations.

Planning for the necessary upgrades to the monitoring well network will need to consider access to offsite properties. A separate Groundwater Monitoring Plan (GMP) will be prepared and submitted under separate cover. The GWMP will outline the planned upgrades to the monitoring well network and will detail the procedures and protocols for new well installation, sampling, laboratory analyses, quality assurance/quality control, and documentation.

Previous groundwater monitoring results demonstrated substantial reductions in dissolved COC concentrations since the 2006 soil removal activity, which is effectively functioning as monitored natural attenuation. Results of future groundwater monitoring events will allow assessment of whether the COC plume continues to diminish over time, and whether additional mitigation options beyond the controls outlined in the SMP are warranted. Such options, if warranted, would need to be evaluated with respect to site conditions in terms of technical effectiveness, implementability, relative costs, and protectiveness. The options to be evaluated would likely include, at a minimum, the following:

- no action
- ongoing monitored natural attenuation
- in-situ chemical oxidation
- mobile dual-phase extraction

## 5.0 REFERENCES

Terracon Consultants, 2022. *Risk Evaluation, Terracon Project 61207244, Murray Deseret Industries, 4485 South Main Street, Murray, Utah, December 22, 2022*

Terracon Consultants, 2020. *2019 Groundwater Monitoring Report, Terracon Project 61197522, Murray Deseret Industries, 4485 South Main Street, Murray, Utah, February 28, 2020*

Utah Department of Environmental Quality, Division of Waste Management and Radiation Control, 2022. *Correspondence dated February 27, 2023 RE: Murray Deseret Industries Risk Evaluation Report*

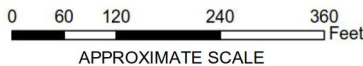
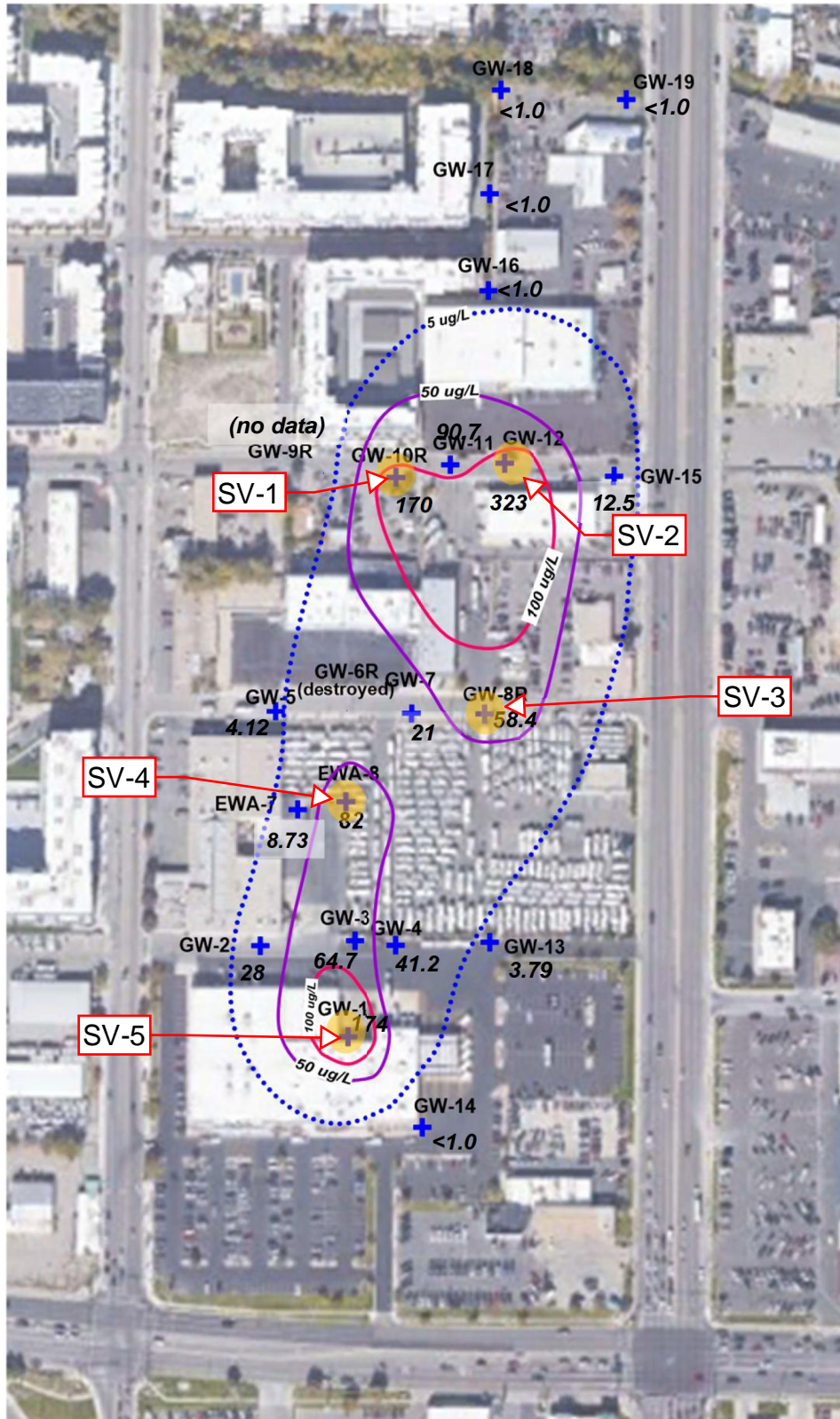
United States Environmental Protection Agency. *Regional Screening Levels for Chemical Contaminants at Superfund Sites*; [https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl\\_search](https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

United States Environmental Protection Agency. *Vapor Intrusion Screening Level Calculator*; <https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator>

Virginia Department of Environmental Quality, 2022. *Virginia Unified Risk Assessment Model (VURAM) Version 3.2.1, Updated: August 2022*

APPENDIX A  
Exhibit 1: Site Diagram





PCE Concentration Contour (dashed where inferred)

28 PCE Concentration (ug/l), December 2019

2022 Soil Gas Sampling Location, Samples SV-1 through SV-5



**+** Monitoring Wells  
(includes wells EWA-7, EWA-8, and GW-1 through GW-19)  
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: ARK	Project No: 61197522
Drawn by: ARK	Scale: As Shown
Checked by: CDE	File Name: 61197522-Exd
Approved by: CDE	Date: 1/20/2020



**Site Diagram**  
The Church of Jesus Christ of Latter-Day Saints  
MURRAY DESERET INDUSTRIES  
4485 South Main Street  
Murray, Utah

Exhibit  
**1**