

**STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**CLEANUP AND ABATEMENT ORDER NO. R6T-2024-(TENTATIVE)  
REQUIRING**

**FHK INVESTMENT COMPANY, TRUCKEE CROSSROADS S.C., L. P.,  
CROSSROADS CLEANERS, TRUCKEE AUTOMOTIVE, QUALITY AUTOMOTIVE  
AND SMOG, FLEET SERVICES, ANYTIME POWER SPORTS, AND KITCHEN  
COLLAB**

**TO ASSESS, CLEANUP, AND ABATE WASTE DISCHARGED  
PURSUANT TO CALIFORNIA WATER CODE SECTIONS 13304 AND 13267  
AT 11357 DEERFIELD DRIVE (PREVIOUSLY KNOWN AS CROSSROADS  
CLEANERS), NEVADA COUNTY  
SITE CLEANUP PROGRAM NO. T6S057**

This Cleanup and Abatement Order No. R6T-2024-(TENTATIVE) (CAO or Order) is issued to FHK Investment Company, Truckee Crossroads S.C., L.P., Crossroads Cleaners, Truckee Automotive, Quality Automotive and Smog, Fleet Services, Anytime Power Sports, and Kitchen Collab, owners and operators<sup>1</sup> at 11357 Deerfield Drive in Truckee, California (hereinafter, the Site). California Water Code (Water Code) sections 13304 and 13267 authorizes the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) to issue this CAO and require the submittal of technical and monitoring reports.

The Lahontan Water Board finds that:

**OVERVIEW**

1. **Discharger(s):** FHK Investment Company, Truckee Crossroads S.C., L.P., Crossroads Cleaners, Truckee Automotive, Quality Automotive and Smog, Fleet Services, Anytime Power Sports, and Kitchen Collab are identified as “Dischargers” because they own or previously owned the Site during the time when the waste discharge occurred, and/or they operate or previously operated at the Site resulting in the discharge of wastes. As detailed in this Order, the Dischargers have caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State, which creates, or threatens to create, a condition of pollution or nuisance.
2. **Location:** The Site, identified by Assessor’s Parcel Number (APN) 018-740-020-000, is located in the city of Truckee in Nevada County (Figure 1). The Site is zoned

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<sup>1</sup> Owners and business entities which operated at the Site, as used herein, have been named as potentially responsible parties. Upon receipt of sufficient information regarding individuals’ control over the disposal or operation practices that may have impacted the waste discharges, this CAO may be amended to include individuals in their personal capacity.

for commercial use. Land use within 500 feet north of the Site is also zoned for commercial use, including restaurants, food markets, and additional retail stores. The Site is bounded to the south by Union Pacific Railroad property and bounded to the west and east by vacant land. The nearest residential property is located over 600 feet northwest of the Site (Figure 2). The Site is within the Truckee River Watershed. The receiving waters are Donner Creek, located approximately 600 feet east of the Site, and the Martis Valley groundwater basin.

3. **Site Description and Activities:** The Site is a 1.31-acre lot occupied by a 6,600 square foot commercial building with three separate units: Suite A, Suite B, and Suite C (Figure 3). The building was built in 1984 using tilt-up construction with pre-cast walls and slab-on-grade concrete. Utility lines, including sewer, water, and gas extend north through the commercial property to the other commercial businesses north of the Site. The Site is currently owned by Truckee Crossroads S.C., L.P. Suite B is occupied by Dreamtown CrossFit, a fitness gym, and Suite C is occupied by the Kitchen Collab, a commercial kitchen and Suite A is vacant (Figure 4).
4. **Site Ownership and Operations History:** The historical Site ownership and operations are summarized in the table below.

**Table 1 – Site Ownership and Operations History  
 11357 Deerfield Drive, Truckee**

<b>APPROXIMATE TIME PERIOD</b>	<b>NAME</b>	<b>OWNER/OPERATOR TYPE</b>
1981 – 2005	FHK Investment Co.	Property owner
2005 – Present	Truckee Crossroads S.C., L.P.	Property owner
1985 – 1992	Truckee Automotive Suite C	Operator
1985 – 2000	Fleet Services Suite A	Operator
1992 – 1999	Anytime Power Sports Suite C	Operator
1992 – 2007	Crossroads Cleaners Suite B	Operator
1999 – 2019	Quality Automotive and Smog Suite A	Operator
2017 – Present	Kitchen Collab Suite C	Operator

5. **Chemical Usage:** Regulatory correspondence, verbal communication, inspection reports, Phase II Environmental Site Assessment (ESA) reports, and other documents available in the case file indicate that chemicals including antifreeze, waste oil, transmission fluid, kerosene, aerosols, and other automotive fluids were

stored and used by the automotive repair and maintenance businesses that operated in Suites A and C at the Site from approximately 1985 to 2009. Additionally, chemical products such as tetrachloroethylene (also known as perchloroethylene or PCE), Scotchgard®, 1000 Zynote Spray Paint, amyl acetate, and Puretech Sofspot were stored and used by the drycleaning business that operated in Suite B from approximately 1992 to 2010.

## EVIDENCE OF WASTE DISCHARGE AND BASIS FOR SECTION 13304 ORDER

The above sections summarize the ownership and the documented chemical usage at the Site. The following evidence indicates discharges occurred.

6. **Waste Discharges:** Site assessments conducted at the Site since 2004 indicate that operations at the former dry-cleaning business, Crossroad Cleaners, resulted in the discharge of wastes, including chlorinated solvents and solvent breakdown products such as carbon tetrachloride (CtCl), tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis1,2-DCE), vinyl chloride (VC), trans-1,2-dichloroethene (trans1,2-DCE), 1,2-dichloroethane (1,2-DCA), and 1,1-dichloroethene (1,1-DCE). Site assessments also indicate that operations at the auto repair and snowmobile maintenance businesses resulted in the discharge of wastes, including gasoline range total petroleum hydrocarbons (TPH-g), benzene (Bz), toluene (PhMe), ethylbenzene (EBz), xylene (Xyl), and methyl-tertiary-butyl ether (MTBE). These chemicals were detected in soil, soil vapor, groundwater, and indoor and outdoor air. The solvents described above are found in waste discharged at the Site due to drycleaning, auto repair, and snowmobile businesses and are collectively referred to as “contaminants of concern” or COCs.
7. **Investigations:** Based on Site assessments and other investigation activities, elevated levels of COCs are present in indoor and outdoor air, soil vapor, soil, and groundwater at the Site. The following assessments and investigation activities have been completed at the Site and in the near vicinity.
  - a. Indoor Air Assessments. Since 2007, four indoor air sampling events have occurred inside the building. Tabulated air sampling data is provided in Table 1 and Figure 5 depicts the air sampling locations.

In May 2007, ADR Environmental Group, Inc. on behalf of Truckee Crossroads S.C., L.P., collected samples inside Suite A, Suite B, and Suite C. Sampling results showed Bz and PCE concentrations exceeded commercial indoor air cancer risk-based environmental screening levels (ESLs)<sup>2</sup> in all three building suites. The maximum concentration of Bz was measured at 3.4 µg/m<sup>3</sup> in Suite A and the maximum concentration of PCE was measured at 200 µg/m<sup>3</sup> in Suite B. Both Bz and PCE detections in indoor air samples are consistent with prior auto

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<sup>2</sup> Human Health Risk Environmental Screening Levels can be found here: [https://www.waterboards.ca.gov/sanfranciscobay/water\\_issues/programs/sitecleanupprogram.html#screeninglevelsandguidance](https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/sitecleanupprogram.html#screeninglevelsandguidance). The ESL for benzene is 0.42 micrograms per cubic meter (µg/m<sup>3</sup>) and the ESL for PCE is 2 µg/m<sup>3</sup>.

repair and drycleaning business operations conducted within each respective suite.

In October 2022, Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P., collected samples inside Suite A and Suite B for analysis of radon to evaluate the vapor intrusion pathway and obtain a Site-specific attenuation factor. Indoor air sampling results provide evidence that the vapor intrusion pathway is complete for the COCs underneath the building to enter indoor air. The migration of COCs to indoor air presents potential health risks to building occupants associated with inhalation of the COC vapors.

In February and June 2023, indoor air samples were collected from Suite B and Suite C by Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P., Results showed elevated levels of Bz in both suites that continue to exceed the cancer risk-based ESLs for commercial buildings. The maximum concentration of Bz was 7.12  $\mu\text{g}/\text{m}^3$  obtained from Suite C. Other COCs of concern that have been detected inside Suite B and Suite C include EBz, PCE, TCE, cis1,2-DCE, 1,2-DCA, 1,4-dichlorobenzene (1,4-DCBz), CtCl, and chloromethane (Clm). Additionally, outdoor ambient air samples collected behind Suite A, Suite B, and Suite C in February and June 2023 show elevated levels of Bz, EBz, PCE, TCE, CtCl, and Clm where disposal and storage of chemicals occurred.

- b. Soil Vapor Assessments. Between January 2004 and October 2022, five soil vapor sampling events were conducted and samples were collected from underneath the building foundation, from soil behind the building, and from soil along utility service lines. Tabulated soil vapor sampling results are provided in Table 2 and the soil vapor sampling locations are depicted in Figure 6.

In January 2004, Kimco Realty contracted with AES Due Diligence to collect samples from under the building foundation of Suite B. The results of sampling provided evidence of a release of cis1,2-DCE and VC, chlorinated solvent breakdown products associated with drycleaning operations. The concentration of cis1,2-DCE (22,000  $\mu\text{g}/\text{m}^3$ ) exceeded the non-cancer risk-based ESL (1,200  $\mu\text{g}/\text{m}^3$ ) and VC (5,200  $\mu\text{g}/\text{m}^3$ ) exceeded the cancer risk-based ESL (5.2  $\mu\text{g}/\text{m}^3$ ).

In October 2005, Truckee Crossroads S.C., L.P., contracted with ADR Environmental Group Inc., to collect soil vapor samples under the building foundation of Suite B and Suite C, from soil behind the building and along the sewer, gas, and water utility lines. The results of sampling showed elevated concentrations of Bz (410  $\mu\text{g}/\text{m}^3$ ), PCE (5,700  $\mu\text{g}/\text{m}^3$ ), TCE (200  $\mu\text{g}/\text{m}^3$ ), and VC (1,300  $\mu\text{g}/\text{m}^3$ ), that exceeded the cancer risk-based ESLs (14  $\mu\text{g}/\text{m}^3$ , 67  $\mu\text{g}/\text{m}^3$ , 100  $\mu\text{g}/\text{m}^3$ , and 5.2  $\mu\text{g}/\text{m}^3$ , respectively). cis1,2-DCE (40,000  $\mu\text{g}/\text{m}^3$ ) was detected at concentrations that exceeded the non-cancer risk-based ESL (22,000  $\mu\text{g}/\text{m}^3$ ). Other COC vapors detected at elevated levels in soil under the building include PhMe (250  $\mu\text{g}/\text{m}^3$ ) and ortho-xylene (o-Xyl) (140  $\mu\text{g}/\text{m}^3$ ). The vapor samples collected from soil behind the building and along the utility service lines also showed elevated levels of COCs indicating: 1) an unauthorized release of

waste to soil behind the building; and 2) the waste is migrating as vapor along utility backfill with the potential to pose vapor intrusion risks to adjacent parcels.

In February 2020, Truckee Crossroads S.C., L.P., contracted with Roux Associates, Inc., to conduct soil vapor sampling under Suite A after Quality Automotive and Smog vacated the building. The sampling results demonstrated that the unauthorized discharge of waste involved petroleum related chemicals including TPH-g ( $10,000 \mu\text{g}/\text{m}^3$ ) and MTBE ( $5.3 \mu\text{g}/\text{m}^3$ ), and confirmed that the concentrations of cis1,2-DCE ( $1,920 \mu\text{g}/\text{m}^3$ ) and VC ( $376 \mu\text{g}/\text{m}^3$ ) exceed vapor intrusion risk-based ESLs. The chemical vapors detected under Suite A are consistent with continued migration of COCs from the former drycleaning business operations, but also suggest that a new release from automobile maintenance and repair had occurred after the initial investigation in 2005.

In September and October 2022, Truckee Crossroads S.C., L.P., contracted with Roux Associates, Inc., to conduct additional soil vapor sampling under Suite A and Suite B. The results continue to show elevated concentrations of PCE ( $97,000 \mu\text{g}/\text{m}^3$ ), TCE ( $21,000 \mu\text{g}/\text{m}^3$ ), cis1,2-DCE ( $74,000 \mu\text{g}/\text{m}^3$ ), VC ( $250 \mu\text{g}/\text{m}^3$ ), and Bz ( $48 \mu\text{g}/\text{m}^3$ ) present under the building at concentrations that exceed the commercial vapor intrusion risk-based ESLs and confirmed other waste constituents are present including TPH-g ( $37,000 \mu\text{g}/\text{m}^3$ ), PhMe ( $55 \mu\text{g}/\text{m}^3$ ), o-Xyl ( $6.6 \mu\text{g}/\text{m}^3$ ), and MTBE ( $13 \mu\text{g}/\text{m}^3$ ). Additionally, the radon analysis conducted concurrently with the sampling event in October 2022 confirmed that the vapor intrusion pathway is complete; that is, chemical vapors have the potential to enter indoor air. See section 2.a., above, for additional information regarding the radon sampling event.

In summary, between January 2004 and October 2022, five soil vapor sampling events were conducted and samples were collected from underneath the building foundation, from soil behind the building, and from soil along utility service lines. The sampling results demonstrate that COC concentrations beneath the building foundation have remained high. Based on the level of ESL exceedances, the evidence that the vapor intrusion pathway is complete, and the presence of vapor migrating along preferential flow paths (via underground utilities), there is a continued threat of chemical vapors entering the indoor air and posing a potential health risk to building occupants.

- c. Groundwater Assessment. In April 2007, three groundwater monitoring wells—MW-1, MW-2, and MW-3—were installed at the Site at approximately 32.5 feet bgs. The average depth to groundwater is approximately 29 ft bgs. Groundwater monitoring was conducted on a quarterly basis from May 2007 to March 2008, and semi-annually thereafter until January 2010. Groundwater monitoring data collected during this time showed elevated levels of PCE, cis1,2-DCE, and water disinfecting chemicals, including bromodichloromethane (BDCM), dibromochloromethane (DBCM), and bromoform (TBM). The maximum concentration of PCE was detected in the upgradient groundwater well, MW-3, at  $1.4 \mu\text{g}/\text{L}$ . Maximum concentrations of cis1,2-DCE, BDCM, DBCM, and TBM were

detected in the downgradient groundwater well, MW2, at 5.2 µg/L, 0.7 µg/L, 1.7 µg/L, and 4.8 µg/L, respectively (Table 4). The wells were destroyed in January 2011. Tabulated groundwater sampling results are provided in Table 3 and the groundwater sampling locations are depicted in Figure 7.

The existing groundwater data provides evidence that: (1) discharges from the Site have occurred; (2) the chemicals under the building have the potential to migrate to the groundwater table; (3) a secondary release between 2005 and 2020 may have contributed to the contamination at the Site; (4) chemical vapors may be migrating along the utility backfill and partitioning to groundwater in the form of dissolved phase contamination in groundwater at the Site; and (5) the groundwater monitoring well network was limited and not sufficient to determine the lateral and vertical extent of contamination. Additionally, the depth to groundwater is shallow at 29 feet bgs and may be in hydraulic continuity with Donner Creek, located approximately 600 feet east of the Site.

- d. Soil Assessment. Between January 2004 and September 2022, soil samples were collected, coinciding with the soil vapor probe installation and groundwater well construction activities described above. Tabulated soil sampling results are included in Table 4 and the soil sampling location map is included in Figure 8.

The soil samples collected during these events were highly disturbed (e.g., collected during air rotary drilling, from the end of an auger, or immediately after vacuuming out the soil vapor probe bore hole during vapor probe construction), lacked information on sampling methodology, and were limited to shallow soil samples (approximately 3 feet below ground surface or bgs) in Suites A and B. No samples have been collected beneath Suite C; as such, the extent of soil contamination has not been fully delineated.

Additional investigation activities are necessary to fill data gaps and determine the extent of COCs in indoor air, soil vapor, soil, and groundwater at the Site to evaluate the potential risk to human health from direct contact and vapor intrusion to indoor air. Cleanup and abatement of soil vapor, soil, and groundwater may be necessary to (1) protect building occupants from the vapor intrusion to indoor air pathway, and (2) protect groundwater, which has a designated beneficial use of municipal and domestic water supply.

8. **Public Nuisance:** Dischargers have caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State, which creates, or threatens to create, a condition of pollution or nuisance. The presence of contamination in soil vapor underneath the commercial building foundation, the threat of vapor intrusion, and the threat of groundwater contamination caused by these contaminants constitutes a public nuisance per se because the pollution occurred from discharges of wastes in violation of the Water Code.

9. **Source Elimination and Remediation Status:** No remediation has occurred at the Site. Remediation may be necessary based on existing data and potential threats to human health and the environment due to COCs in soil, soil vapor and groundwater.
10. **Regulatory Status:** The Lahontan Water Board's regulatory actions, including investigatory orders and correspondence with multiple Dischargers, are summarized below.
- a. On September 22, 2006, the Lahontan Water Board issued an order pursuant to Water Code section 13267, requiring Kimco Realty Corporation, FHK Investment Company, and Su Yong Suh<sup>3</sup> to conduct an indoor air survey and to prepare a groundwater investigation work plan at the Site. The indoor air survey was completed in May 2007 and groundwater investigation work plan was submitted in January 2007.
  - b. On March 9, 2007, the Lahontan Water Board issued an order pursuant to Water Code section 13267, requiring Kimco Realty Corporation, FHK Investment Company, and Su Yong Suh to implement the groundwater investigation work plan and submit quarterly groundwater monitoring reports. Groundwater monitoring began in May 2007 and quarterly monitoring reports were submitted until March 2008.
  - c. On June 17, 2009, the Lahontan Water Board issued an order pursuant to Water Code section 13267, requiring Kimco Realty Corporation, FHK Investment Company, and Su Yong Suh to prepare a work plan to define the lateral and vertical extent of soil contamination and submit semi-annual groundwater monitoring reports. A soil assessment work plan was approved by Lahontan Water Board staff in August 2009, but the work plan was never implemented. Groundwater monitoring commenced in July 2009 and semi-annual monitoring reports were submitted until January 2010.
  - d. On November 15, 2010, after reviewing the available data, the Lahontan Water Board issued a letter to Kimco Realty Corporation, FHK Investment Company, and Su Yong Suh stating that no further action was required for the Site. The letter states that this determination was based on the provision that the information provided to the board was accurate and representative of Site conditions. The case closure summary for the Site based closure on the following premise: chlorinated hydrocarbons remained in soil beneath the building foundation but did not pose a threat to building occupants; leaching of soil contamination to groundwater was expected to be low or none; and chlorinated hydrocarbons in groundwater demonstrated a decreasing trend over time. The conclusions in the case closure summary were based on an incomplete Site

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<sup>3</sup> Previous naming of Su Yong Suh in informal correspondence and regulatory directives from the Lahontan Water Board does not dictate naming the individual in this CAO. Crossroads Cleaners has replaced Su Yong Suh for purposes of the responsible party given the operation, and if additional information supports naming Su Yong Suh as an individual, this Order will be amended.

investigation and limited data available at the time that was not fully representative of Site conditions.

- e. The three groundwater monitoring wells (MW-1, MW-2, and MW-3) were subsequently destroyed in January 2011. A groundwater well destruction report was submitted in March 2011.
- f. In June 2022, the Lahontan Water Board received notice from the Nevada County Department of Environmental Health that a workplan to conduct soil vapor sampling and application to obtain an environmental boring permit was submitted by Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P. It was determined that the workplan and permit application were submitted to further evaluate soil vapor concentrations observed during an investigation that was conducted by Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P., in February 2020. The investigation was implemented to assess property conditions after the prior tenant, Quality Auto & Smog, vacated the Site. At the request of Lahontan Water Board staff, the *Post-Vacancy Phase II Environmental Site Assessment Report* for the February 2020 investigation was submitted on August 8, 2022.
- g. In September 2022, the workplan for soil vapor sampling was accepted and Lahontan Water Board staff was on-Site during the installation of the soil vapor probes. The scope of work included the collection of samples under the building foundation of Suite A and Suite B. The newly installed vapor probes were sampled on September 27, 2022. The information obtained from the sampling event suggested that the vapor concentrations were elevated (above ESLs) so Lahontan Water Board staff requested immediate resampling of the soil vapor probes with expedited turnaround time to confirm the results.
- h. On October 24, 2022, the soil vapor probes were resampled, and evidence was provided that the concentrations of chlorinated solvents and petroleum related COCs remain elevated and have not decreased since the No Further Action letter was issued in 2010.
- i. On November 9, 2022, Lahontan Water Board staff directed Truckee Crossroads S.C., L.P., to prepare an indoor air sampling work plan to evaluate indoor air concentrations of COCs in all three building suites.
- j. On December 9, 2022, an indoor air sampling workplan was submitted by Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P. On December 13, 2022, Lahontan Water Board staff identified deficiencies in the work plan, stating that the work plan should address seasonal variations and continuous long-term exposure within the building.
- k. On December 13, 2022, the Lahontan Water Board issued a *Notice of Responsibility (NOR) for Corrective Action and Site Assessment* letter to Truckee Crossroads S.C., L.P., FHK Investment Company, Su Yong Suh (Crossroads



Cleaners), William Greeno (Quality Automotive and Smog), Mark Jacobson (Quality Automotive and Smog), Anytime Power Sports, Scott Klein (Fleet Service), and Robert E. Stone (Stones Country Tire and Automotive). The NOR directed the parties to submit an Interim Vapor Intrusion Remedial Action Plan (IRAP); a Soil, Soil Vapor, and Groundwater Assessment Workplan (Workplan); and Remedial Action Plan for the Site and mitigate vapor intrusion risks until cleanup goals are achieved.

- l. On December 16, 2022, Roux Associates, Inc., responded to Lahontan Water Board staff comments on the indoor air sampling work plan. The environmental consultants provided that the upcoming scope of work would not be amended to include Lahontan Water Board staff directives.
- m. On December 22, 2022, Porter Simon Law, the law firm representing Quality Automotive and Smog, requested an extension to the IRAP and Workplan deadlines. On December 23, 2022, Lahontan Water Board staff granted the extension and revised the deadline to January 12, 2023.
- n. On January 9, 2023, and January 10, 2023, Lahontan Water Board staff requested a time schedule to conduct indoor air sampling. On January 12, 2023, Roux Associates, Inc., responded that an agreement was being sought between the responsible parties before a formal response could be prepared.
- o. On January 13, 2023, Lahontan Water Board staff emailed Kimco Realty, SSL Law Firm and Porter Simon Law, to provide notification that an extension to sample indoor air had not been granted and indoor air needed to be sampled immediately. Lahontan Water Board staff also recommended that signs be posted on the door of each suite to notify building occupants and the public about the risk of exposure to chlorinated solvent vapors inside the building. It is unknown if any warning signs have been posted and if the signage has remained available for ongoing public notification.
- p. On January 24, 2023, a notice was provided by SSL Law Firm, attorney for Truckee Crossroads S.C., L.P., that indoor air sampling was scheduled for the week of February 6, 2023.
- q. On January 25, 2023, the Lahontan Water Board submitted a Proposition 65 notification to the Nevada County Department of Health regarding the release of chlorinated and non-chlorinated COCs at the Site based on the 2022 soil vapor data indicating that concentrations of COCs exceed human health risk-based screening levels.
- r. On February 2, 2023, Roux Associates, Inc., notified Lahontan Water Board staff that indoor air would be sampled on February 7, 2023. The results were submitted on February 15, 2023.
- s. On March 1, 2023, Lahontan Water Board staff met with Truckee Crossroads S.C., L.P., to discuss the findings of the February 7, 2023, sampling event. The

meeting resulted in the determination that Truckee Crossroads S.C., L.P., would conduct another round of indoor air sampling at the Site. A timeframe for resampling was not provided.

- t. On April 21, 2023, Roux Associates, Inc., on behalf of Truckee Crossroads S.C., L.P., submitted a *Soil Vapor & Indoor Air Sampling Report* to the Lahontan Water Board. The report summarized the results of soil vapor sampling conducted in February 2020, September 2022 and October 2022; and indoor air sampling conducted in February 2023.
- u. On May 2, 2023, Truckee Crossroads S.C., L.P., confirmed to Lahontan Water Board staff that indoor air resampling would occur in June 2023.
- v. On August 17, 2023, Lahontan Water Board staff received the *Temporal Investigation Report*, prepared by Roux Associates, Inc., for Truckee Crossroads S.C., L.P., summarizing the results of June 2023 sampling event. Results of the sampling confirmed Bz exceeds the indoor air ESL. Other COCs present include EBz, PCE, TCE, 1,2-DCA, 1,4-DCBz, CtCl, Clm, and chloroform (Clf).

11. **Sources of Information:** The sources for the evidence summarized above include, but are not limited to, reports and other documentation in Lahontan Water Board files, including meeting and telephone call documentation, e-mail communication with Dischargers, their attorneys, and/or consultants, and Site visit reports. Relevant reports and data can be accessed electronically through the State Water Resources Control Board's (State Water Board) online public database; GeoTracker, Global Identification Number SL0605702754 (<https://geotracker.waterboards.ca.gov>).

#### **AUTHORITY – LEGAL REQUIREMENTS**

12. Water Code section 13304, subdivision (a) provides that:

*“(a) Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates, or threatens to create, a condition of pollution or nuisance, must upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board, or a regional board may require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, must petition the superior court for*

*that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court must have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.”*

13. Water Code section 13304, subdivision (c)(1) provides that:

*“ . . . the person or persons who discharged the waste, discharges the waste, or threatened to cause or permit the discharge of the waste within the meaning of subdivision (a), are liable to that government agency to the extent of the reasonable costs actually incurred in cleaning up the waste, abating the effects of the waste, supervising cleanup or abatement activities, or taking other remedial actions. . . .”*

14. Water Code section 13267, subdivision (b)(1) provides that:

*“In conducting an investigation . . . the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or, discharging, or who proposes to discharge waste within its region must furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports must bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board must provide the person with a written explanation with regard to the need for the reports and must identify the evidence that supports requiring that person to provide the reports.”*

15. This Order requires investigation and submittal of work plans and supporting technical documents. Based upon Lahontan Water Board staff experience with similar investigations, the approximate cost of these reports is estimated to be \$150,000 for the initial investigative deliverables. Costs may be shared if the Dischargers work collectively and minimized if required information already exists but has not been provided to the Lahontan Water Board. The burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained. Specifically, the technical reports required by this Order are necessary to assure compliance with Water Code section 13304 and State Water Board Resolution 92-49, including to adequately investigate the extent and persistence of discharges, and intrinsic to cleanup of the Site to protect the beneficial uses of waters of the State, to protect against nuisance, and to protect human health and the environment.

16. The State Water Board has adopted Resolution No. 92-49, the Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304. This resolution sets forth the policies and procedures to be used during an investigation or cleanup of a polluted site and requires that cleanup levels be consistent with State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California.

Resolution No. 92-49 and the Lahontan Water Board's *Water Quality Control Plan for the Lahontan Region* (Basin Plan) establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background, or if that is not feasible, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with California Code of Regulations, title 23, section 2550.4.

17. The Basin Plan identifies beneficial uses and establishes narrative and numeric water quality objectives to protect beneficial uses. Here, the Site lies within the Martis Valley Groundwater Basin in the North Lahontan Hydrologic Region. The designated beneficial uses of the Martis Valley Groundwater Basin include municipal and domestic supply (MUN), agricultural supply (AGR), and freshwater replenishment (FRSH). Water quality objectives to protect the beneficial use of MUN that apply to groundwater at the Site includes narrative and numerical objectives for "Bacteria and Coliform", "Chemical Constituents," "Radioactivity," and "Taste and Odor," which incorporates by reference state maximum contaminant levels set forth in Title 22 of the California Code of Regulations. The Basin Plan also provides:

*"Under the State Antidegradation Policy (State Board Resolution 68-16), whenever the existing quality of water is better than that needed to protect all existing and probably future beneficial uses, the existing high quality must be maintained until or unless it has been demonstrated to the State that any change in water quality will be consistent with the maximum benefit of the people of the State, and will not unreasonably affect present and probably future beneficial uses of such water. Therefore, unless these conditions are met, background water quality concentrations (the concentrations of substances in natural waters that are unaffected by waste management practices or contamination incidents are appropriate water quality goals to be maintained..."*

As discussed in the Evidence of Waste Discharge section of this Order, the concentrations of PCE, cis-1,2-DCE, BDCM, DBCM, and TBM exceed the water quality objectives outlined in the Basin Plan.

18. In the event of a determination that the Site groundwater is hydraulically connected to Donner Creek, a tributary to the Truckee River, relevant beneficial uses for that surface water body include municipal and domestic supply (MUN), agricultural supply (AGR), groundwater recharge (GWR), water contact recreation (REC-1), noncontact recreation (REC-2), commercial and sport fishing (COMM), cold freshwater habitat (COLD), wildlife habitat (WILD), rare/threatened/endangered species (RARE), migration of aquatic organisms (MIGR), and fish and wildlife spawning/reproduction/development (SPWN). The water quality objectives to protect these surface water beneficial uses, including the narrative and numerical objectives, are outlined in Chapter 3 of the Basin Plan.
19. The exceedance of applicable narrative or numeric water quality objectives in the Basin Plan constitutes contamination, pollution and nuisance as defined in Water Code section 13050.

20. The wastes detected in the soil matrix and soil vapor at the Site have caused and threaten to continue to cause nuisance, as defined in Water Code section 13050.
21. The threat of vapor intrusion into the buildings at the Site has caused or threatens to cause nuisance as defined in Water Code section 13050, subdivision (m). As described above, the concentrations of PCE, TCE, VC, and Bz in soil vapor exceed cancer risk-based environmental screen levels for commercial land use. In particular, the threat of vapor intrusion is injurious to health, indecent or offensive to the senses, and an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; affects at the same time an entire community; and occurs during or as a result of the treatment or disposal of waste.
22. The Lahontan Water Board may require the Dischargers to submit a Public Participation Plan or engage in other activities to disseminate information and gather community input regarding the Site, as authorized or required by Water Code sections 13307.1, 13307.5 and 13307.6.
23. This Order requires investigation and cleanup of the Site in compliance with the Water Code, the Basin Plan, State Water Board Resolutions 92-49 and 68-16, and other applicable plans, policies, and regulations. All Dischargers are responsible for complying with each and every requirement, unless otherwise specifically noted.

#### **DISCHARGER LIABILITY**

24. PCE, TCE, cis1,2-DCE, VC, 1,1-DCE, trans1,2-DCE, Bz, PhMe, EBz, Xyl, TPH-g, MTBE, and other waste constituents discharged at the Site constitutes “waste” as defined in Water Code section 13050, subdivision (d). The ongoing migration of these wastes is a “discharge.” Dischargers have thus permitted, caused or permitted, and/or threaten to cause or permit waste to be discharged where it has and probably will be discharged into the waters of the State and have created and/or threaten to create a condition of pollution and nuisance.
25. The relevant facts and weight of the evidence indicates that the following Dischargers caused or permitted waste to be discharged into waters of the State and are therefore appropriately identified in this Order:
  - a. **Truckee Crossroads S.C., L.P.:** Truckee Crossroads S.C., L.P., is a Discharger because, as the current owner of the Site, it has caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created, and continues to threaten to create a condition of pollution or nuisance.<sup>4</sup>

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<sup>4</sup> *Tesoro Refining & Marketing Company LLC v. Lahontan Regional Water Quality Control Board*, 42 Cal.App.5th 453, 457 (2019), held “the term ‘discharge’ must be read to include not only the initial occurrence [of a discharge], but also the passive migration of the contamination into the soil.” The Court affirmatively cited State Board precedent: “State Board held that a continuous and ongoing movement of contamination from a source through the soil and into the groundwater is a discharge to waters of the State

- b. **FHK Investment Company:** FHK Investment Company is a Discharger because, as the former owner from approximately 1981 to December 2005, FHK Investment knew or should have known that activities on the Site created a reasonable possibility of discharge into waters of the State that could create or threaten to create a condition of pollution or nuisance and had the ability to control those discharges. As the former owner, FHK Investment also had control over leasing out retail space and managing and maintaining common areas such as sidewalks, parking areas, and delivery areas. In January 2004, FHK Investment Company completed a Phase II ESA at the Site prior to selling the property, which confirmed a release of COCs to the subsurface from past business operations at the Site.
- c. **Quality Automotive and Smog (Suite A):** Quality Automotive and Smog is a Discharger because, as an operator using petroleum products at the Site, its activities at the Site caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created and continues to threaten to create a condition of pollution or nuisance. Based on the Lahontan Water Board's understanding, Mr. Harry Thompson operated Quality Automotive and Smog as an individual from approximately 1999 to 2003 and as the Chief Executive Officer of Quality Automotive and Smog, Inc. from approximately 2003 to 2009. As of June 2010, Quality Automotive and Smog, Inc. is a dissolved corporation. While in operation, this facility performed smog tests, oil changes, and repairs to alternators and starters.

Mr. Thompson sold Quality Automotive and Smog to William Greeno. Mr. Greeno owned and operated the business for approximately 10 years, from 2009 to 2019. The business utilized/stored new oil, waste oil, various parts cleaners, brake fluid, anti-freeze, and lubricants. Additionally, new evidence provided in the 2020 investigation identifies COCs under Suite A that are associated with petroleum hydrocarbons that had not been identified during the previous investigations.

Mr. Thompson and Mr. Greeno are not named as individuals in this Order, although if sufficient evidence of individual liability becomes available, this Order may be amended.

- d. **Fleet Services (Suite A):** Fleet Services is a Discharger, because as the owner/operator of Fleet Services using and storing petroleum products at the Site, its activities caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created and continues to

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and subject to regulation.” (*Ibid.*, citing State Water Board Order WQ 86-2 (*Zoecon Corp*), WQ74-13 (*Atchison, Topeka, et al*), and WQ 89-8 (*Spitzer*) [“[D]ischarge continues as long as pollutants are being emitted at the site”]. See also State Water Board Order WQ 89-1 (*Schmidl*.) Under California law, courts have historically held, and modern courts maintain, that possessors of land may be liable for a nuisance on that land even if the possessor did not create the nuisance. (See *Leslie Salt Co. v. San Francisco Bay Conservation and Dev. Comm’n* (1984) 153 Cal.App.3d 605, 619–620).

threaten to create a condition of pollution or nuisance. Fleet Services operated a fleet service repair shop in Suite A from approximately 1985 to 2000. In a hazardous material inspection report dated October 29, 2001, Nevada County Department of Environmental Health observed 55-gallon drums of antifreeze, waste oil, oil filters, transmission fluid, and kerosene stored on-Site.

Mr. Scott Klein is not named as an individual in this Order, although if sufficient evidence of individual liability becomes available, this Order may be amended.

- e. **Crossroads Cleaners (Suite B):** Crossroads Cleaners is a Discharger because the drycleaning operations used and stored chlorinated solvents (PCE and TCE) at the Site, its activities caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created and continues to create a condition of pollution or nuisance. Crossroads Cleaners operated in Suite B for approximately fifteen years, from 1992 to 2007, where it performed laundering of clothes using drycleaning machines and exposing the garments to drycleaning solvents.

Su Yong Suh is not named as an individual in this Order, although if sufficient evidence of individual liability becomes available, this Order may be amended.

- f. **Truckee Automotive (Suite C):** Truckee Automotive is a Discharger because, its operation used petroleum products (motor oil, aerosol cleaners, and other automotive fluids) at the Site, its activities caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created and continues to threaten to create a condition of pollution or nuisance. Truckee Automotive operated in Suite C for approximately five years from 1985 to 1992 where it performed brake repairs, external motor repairs, transmission replacement, and oil changes. Petroleum products were stored on-Site, and aerosol cleaners were used to clean and degrease automotive parts.
- g. **Anytime Power Sports, Inc. (Suite C):** Anytime Power Sports, Inc. is a Discharger because it owned and operated Anytime Power Sports, a snowmobile maintenance shop, in Suite C from approximately 1992 to 1999. Petroleum products were stored inside the building and waste oil was stored in aboveground tanks. During this time, Anytime Power Sports' activities at the Site caused or permitted waste to be discharged or deposited where it has discharged to waters of the State and has created and continues to threaten to create a condition of pollution or nuisance. In April 1998, Anytime Power Sports, Inc. was dissolved.

Mr. Dan Beattie and Mr. Eric Hartman are not named as individuals in this Order, although if sufficient evidence of individual liability becomes available, this Order may be amended.

- h. **Kitchen Collab (Suite C):** Kitchen Collab is a Discharger because its business activities caused or permitted waste to be discharged or deposited where it has

discharged to waters of the State and has created and continues to threaten to create a condition of pollution or nuisance. Documentation provides that food delivery trucks are washed inside the building. The wash/rinse water is discharged to a sand and oil trap through a floor drain that is located inside the building toward the northeastern corner. The rinse water may contain petroleum hydrocarbons, other related COCs and may be flushing the contaminants in soil to the groundwater table. The food delivery trucks are parked outside the Site. Recent petroleum staining behind the building has been observed and is likely from leaking food delivery trucks.

Mr. Alex Tolger is not named as an individual in this Order, although if sufficient evidence of individual liability becomes available, this Order may be amended.

26. Decades of Lahontan Water Board staff experience with industries that use, store, and transfer chemicals such as chlorinated solvents and petroleum products (e.g., PCE, TPH-g, MTBE etc.), provide evidence that small amounts of spilled chemicals during routine operations, seep through concrete and other intended containment, leading to the type of contamination found at the Site. Standard chemical handling practices often unknowingly allow adverse environmental impacts, like the ones observed at the Site, to occur. These factors suggest the Dischargers have discharged and may be continuing to discharge concentrations of chemicals of concern which must be cleaned up and abated to protect the environment and human health.<sup>5</sup>
27. Due to the activities described in this Order, the Dischargers have caused or permitted wastes, including TPH-g, Bz, EBz, PhMe, Xyl, MTBE, PCE, TCE, cis1,2-DCE, VC, 1,1-DCE, trans1,2-DCE, 1,2-DCA, 1,4-DCBz, Clm, Clf, BDCM, DBCM, and TBM to be discharged or deposited where the wastes are, or probably will be discharged into the waters of the State which creates a condition of pollution or nuisance.
28. The Dischargers have caused or permitted TPH-g, Bz, EBz, PhMe, Xyl, MTBE, PCE, TCE, cis1,2-DCE, VC, 1,1-DCE, trans1,2-DCE, 1,2-DCA, 1,4-DCBz, Clm, Clf, BDCM, DBCM, and TBM, to be discharged or deposited where the wastes are or probably will pose a potential human health threat to occupants of the Site through vapor intrusion into indoor air or through other exposure pathways.
29. The Lahontan Water Board will consider whether additional Dischargers caused or permitted the discharge of waste at the Site and whether additional Dischargers should be added to this Order. The Lahontan Water Board may amend this Order or issue a separate order or orders in the future as more information becomes

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<sup>5</sup> State Board Order WQ 86-16 (*Stinnes-Western*) supports the use of evidence of chemical use, standard chemical handling practices, and detections of that chemicals in the environment as reasonable bases supporting a cleanup and abatement order. "As we noted earlier, given the very low action levels for these chemicals, today we are concerned with any discharge." (*Ibid.* at n. 4.)



available. The Lahontan Water Board is issuing this Order to avoid further delay of Site investigation and remediation.

30. Several orders have already been issued by the Lahontan Water Board to parties legally responsible for environmental investigation at the Site. The September 22, 2006 and March 9, 2007 investigative orders required the investigation of groundwater and indoor air quality; the June 17, 2009 order required delineation of the discharge in soil and groundwater. The 2009 order requirements have not been fulfilled as the delineation of impacts to soil is incomplete. The obligations contained in this Order supersede and replace those contained in prior orders.

### **OTHER CONSIDERATIONS**

31. Issuance of this Order is being taken for the protection of the environment and as such is exempt from provisions of the California Environmental Quality Act (CEQA) (Public Resources Code §§ 21000 et seq.) in accordance with title 14, California Code of Regulations, sections 15061, subdivision (b)(3), 15306, 15307, 15308, and 15321. This Order generally requires the Dischargers to submit plans for approval prior to implementation of cleanup activities at the Site. Mere submittal of plans is exempt from CEQA as submittal will not cause a direct or indirect physical change in the environment and/or is an activity that cannot possibly have a significant effect on the environment. CEQA review at this time would be premature and speculative, as there is not enough information concerning the Dischargers' remedial activities and possible associated environmental impacts. If the Lahontan Water Board determines that implementation of any plan required by this Order will have a significant effect on the environment, the Lahontan Water Board will conduct the necessary and appropriate environmental review prior to the Lahontan Water Board Executive Officer's approval of the applicable plan.
32. Pursuant to Water Code section 13304, the Lahontan Water Board may seek reimbursement for all reasonable costs through the Cost Recovery Program to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.
33. Liability pursuant to this Order is joint and several. Dischargers may proceed individually or collectively to fulfill the obligations of this Order. Current data does not support investigations based on the length of ownership/operation, type of operation, or limited to a particular suite. This Order does not impact any Discharger's rights to seek indemnity or contribution against another in another proceeding, although the Lahontan Water Board does not allocate liability.
34. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring the Discharger(s) to clean up the groundwater to meet drinking water standards.

35. Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and title 23, California Code of Regulations, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Note that filing a petition does not fulfill the requirements of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request or may be found on the Internet at: [http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)

### REQUIRED CORRECTIVE ACTIONS

36. **THEREFORE, IT IS HEREBY ORDERED**, pursuant to CWC sections 13304 and 13267 that the Discharger(s) must investigate, cleanup the waste and abate the effects of waste discharged and that threatens to discharge at and from 11357 Deerfield Drive in Truckee, Nevada County. The Discharger(s) must comply with the following required corrective actions, the additional corrective action requirements outlined in Attachment A, the time schedule outlined in Attachment B, and the monitoring and reporting requirements outlined in Attachment C and are incorporated by reference as though set forth in this Order. Information related to the required corrective actions is outlined below.

- a. **Develop and Submit a Conceptual Site Model** – The Conceptual Site Model (CSM) should include a written presentation with graphic illustrations of discharge scenario, geology and hydrogeology, waste fate and transport of COCs in soil, soil vapor, indoor air and groundwater, distribution of wastes, exposure pathways, sensitive receptors and other relevant information. The CSM must be based upon the actual data collected from the Site and must identify data gaps (i.e., areas where further investigation is necessary). The CSM must be updated annually and include any new information for the Site.

If information presented in the CSM suggests that assessment, characterization and delineation of waste constituents is incomplete and that data gaps are present, the Dischargers must prepare and submit a work plan to complete assessment and characterization of COCs and other potential waste constituents in soil vapor, indoor air, soil matrix and groundwater and to fully delineate the vertical and lateral extent of wastes in the soil, soil gas, and groundwater on-Site and off-Site.

- b. **Prepare and Submit a Human Health and Ecological Risk Assessment** – The Dischargers must submit a human health risk assessment (HHRA), and if applicable an ecological risk assessment (ERA). The purpose of the HHRA is to estimate the potential chronic human health risk/hazard from all waste constituents in the indoor air, soil vapor, soil matrix and groundwater. The purpose of the ERA is to evaluate risks to animal and plant life (biota) posed by the waste constituents. The HHRA and ERA must state the scope of the

assessment, express results clearly, articulate assumptions and uncertainties, be transparent, consistent, reasonable, and separate scientific conclusions from policy judgements.

- c. **Develop, Submit, and Implement a Site Assessment Work Plan(s)** – The Site Assessment Work Plan(s) must propose investigation activities to update on-Site and off-Site information with the data required to fill identified data gaps, fully assess the lateral and vertical extent of the wastes in soil, soil vapor, groundwater and indoor air, and evaluate potential threats to human health and ecological receptors. “Fully assess” means the Dischargers must perform step-out sampling, both laterally and vertically, including along preferential pathways (e.g., stormwater conveyance system, sanitary sewer, water and gas utility backfill) to support evaluation of the potential threats to human health until soil, soil vapor, groundwater and indoor air concentrations are clearly defined. The Site Assessment Work Plan must include the scope of work to obtain background (naturally occurring or from any upgradient source[s]) concentrations of the waste identified at the Site.

The data required will be used to update the CSM, support development of the HHRA and ERA, and make recommendations for appropriate interim and final remedial actions to cleanup and abate the waste identified in the subsurface and indoor air.

Concurrent and phased Site assessment may be warranted, and completion of the full Site characterization may require multiple submittals of Site investigation work plans for review and approval.

- d. **Prepare, Submit, and Implement a Public Participation Plan** – The Dischargers must prepare and submit a Public Participation Plan (PPP) in accordance with Water Code sections 13307.5 and 13307.6 and currently available guidance for public participation. The goal of the PPP is to provide stakeholders and other interested persons with periodic and meaningful opportunities to review, comment upon, and influence investigation and cleanup activities at the Site. Public participation activities must coincide with key decision-making points throughout the process as specified or as directed by the Lahontan Water Board’s Executive Officer.
- e. **Develop, Submit and Implement Mitigation and Remediation Plans** – The Dischargers must develop and implement a cleanup and abatement program for cleanup of wastes in the soil matrix, soil vapor, indoor air, and groundwater and abatement of the effects of the discharges of waste on beneficial uses of water, human health, and the environment. Multiple remedial measures may be warranted and implemented to achieve all Site cleanup goals.

The cleanup and abatement program must include remedial actions to mitigate vapor intrusion to indoor air, interim remedial measures to immediately reduce soil vapor concentrations underneath the building foundation (Interim Remedial

Action Plan), and removal of waste in the soil matrix and groundwater (Remedial Action Plan).

- f. **Implement a Monitoring and Reporting Program** – The Dischargers must implement a monitoring and reporting program (MRP) that includes vapor intrusion mitigation monitoring, evaluates indoor air and outdoor air quality, determines and monitors concentrations of vapor forming chemicals under the building, assesses groundwater quality and plume migration, and monitors the remediation system.
- g. **Submit Groundwater Well Completion Reports** – A Well Completion Report must be submitted electronically to the Lahontan Water Board and to the Department of Water Resources each time a well is installed, pursuant to Water Code section 13751 by the deadline outlined in Attachment B.
- h. **Submit Well Abandonment Reports** – Abandonment of any groundwater well(s) at the Site must be approved by and reported to the Lahontan Water Board at least 30 days in advance. Any groundwater wells removed must be replaced within a reasonable time, at a location approved by the Lahontan Water Board. With written justification, the Lahontan Water Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all work must be completed in accordance with California Department of Water Resources Bulletin 74-90, “California Well Standards,” Monitoring Well Standards Chapter, Part III, Sections 16-19. Well destruction reports must be submitted electronically to the Lahontan Water Board and the Department of Water Resources according to the time schedule outlined in Attachment B.
- i. **Implement the Time Schedule** – The Dischargers must submit all required work plans and reports and complete the work within the schedule in any approved work plan or RAP, and the time schedule set forth in Attachment B, attached hereto and incorporated herein by reference, which may be revised by the Executive Officer at his/her discretion.

#### **OTHER REQUIREMENTS AND SPECIFICATIONS**

37. **Authorized Inspection and Entry** – The Lahontan Water Board’s authorized representative(s) must be allowed:
- a. Entry upon premises where a regulated facility or activity is located, conducted, or where records are stored, under the conditions of this Order;
  - b. Access to copy any records that are stored under the conditions of this Order;
  - c. Access to inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
  - d. The right to photograph, sample, and monitor the Site for the purpose of ensuring compliance with this Order, or as otherwise authorized by the Water Code.

38. **Contractor/Consultant Qualifications** – As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all reports must be prepared by, or under the supervision of, a California registered professional civil engineer or geologist and signed by the registering professional. All technical reports submitted by the Discharger(s) must include a statement signed by the authorized representative certifying under penalty of law that the representative has examined and is familiar with the report and that to his/her knowledge, the report is true, complete, and accurate. All technical documents must be signed by and stamped with the seal of the above-mentioned qualified professionals that reflects a license expiration date.
39. **Compliance with All Laws and Requirements** – This Order is not intended to permit or allow the Dischargers to cease any work required by any other Order issued by the Lahontan Water Board, nor must it be used as a reason to stop or redirect any investigation or cleanup or remediation programs ordered by the Lahontan Water Board or any other agency. Furthermore, this Order does not exempt the Dischargers from compliance with any other laws, regulations, or ordinances which may be applicable, nor does it legalize these waste treatment and disposal facilities, and it leaves unaffected any further restrictions on those facilities which may be contained in other statutes or required by other agencies.
40. **Notice of Changed Name or Ownership** – The Discharger(s) must submit a notice to the Lahontan Water Board 30-days in advance of any planned changes in name, ownership, or control of the Site and must submit a notice to the Lahontan Water Board 30-days in advance of any planned physical changes to the Site that may affect compliance with this Order. In the event of a change in ownership or operator, the Discharger(s) must provide a notice 30-days in advance, by letter, to the succeeding owner/operator of the existence of this CAO and must submit a copy of this advance notice to the Lahontan Water Board. Transfer of ownership does not automatically transfer responsibility for the requirements in this Order.
41. **Mandatory Communications to the Lahontan Water Board.** Notice of any of the following activities should be communicated to the Lahontan Water Board as specified below.
- a. **Notice of Tentative Secondary Release** – Should the monitoring data indicate, for a given monitoring parameter, that a new release has been identified, the Dischargers must follow these requirements.
    - i. **Physical or Measurably Significant Evidence of a Release** – The Dischargers must immediately notify the Lahontan Water Board verbally whenever a determination is made that there is significant physical or “measurably significant” evidence of a new release. This verbal notification must be followed by written notification via certified mail within seven (7) days of such determination. Upon such notification, the Discharger may initiate verification procedures or demonstrate that another source other than the business operations or failed structural building components

caused the evidence of the release. The notification must include: (1) the potential source of the release; (2) information including the date, time, location, and cause of the release; (3) an estimate of the flow rate and volume of waste involved; (4) a procedure for collecting samples and description of laboratory tests to be conducted; (5) identification of any media affected or threatened including air, soil vapor and groundwater; (6) a summary of proposed corrective actions; (7) the physical factors that indicate evidence of a release; and (8) the monitoring parameters that are involved in the release.

- ii. **Other Source That May Cause Evidence of a Release** – The Dischargers may make a demonstration that a source other than business operations or failed structural building components caused evidence of a release. For this case, the Dischargers must notify the Lahontan Water Board of intent to make this demonstration. The notification must be sent to the Lahontan Water Board by certified mail within 7 days of determining physical or measurably significant evidence of a release.
- b. **Response to a Verified Secondary Release** – The Discharger(s) must, within 90 days of verifying a new release, submit a work plan to investigate the release. The work plan must include at minimum:
- i. **Chemical Concentrations** – The maximum concentration of each monitoring parameter at each monitoring point as determined during the most recent sampling event. Any monitoring parameter that exceeds its cleanup goal is to be retested at that monitoring point. Should the results of the retest verify that the constituent of concern is above the concentration limit, then that constituent of concern will become a monitoring parameter at that monitoring point.
  - ii. **Monitoring System Changes:** Any changes to the MRP that are necessary to maintain compliance with the CAO.
  - iii. **Delineation Approach:** A detailed description of the measures to be taken by the Discharger to assess the nature and extent of the release.
- c. **Response to a Significant Earthquake Event** – After a significant<sup>6</sup> or greater earthquake event at or near the Site, the Discharger(s) must notify the Lahontan Water Board within 48 hours, and within 45 days submit to the Lahontan Water Board a detailed written post-earthquake report describing any physical damages to the remediation system, containment features or groundwater and/or unsaturated zone monitoring systems or to report no damage to the Site was sustained. The Discharger(s) must closely examine the utility piping, inspect the slope conditions, drainage control system, and surface grading for signs of

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<sup>6</sup> A significant earthquake is a seismic event classified according to the United States Geological Survey (USGS) Earthquake Hazard Program as a moderate earthquake measuring between 5 and 5.9 on the Richter scale, or higher. The Discharger may use the Modified Mercalli Intensity Scale VI or higher for equivalent ground shaking generated by a significant earthquake of Richter magnitude 5.0 or higher as contained with the USGS Earthquake Hazard Program Magnitude/Intensity Comparison chart found at <https://earthquakes.usgs.gov>.

cracking or depressed/settled areas following the earthquake event. If cracking or depressed areas are identified, the Discharger(s) must make repairs to those areas within 30 days from the date of the earthquake event. Repairs and maintenance must be consistent with the CAO.

42. **Well Abandonment Approval** – Abandonment of any groundwater well(s) at the Site must be approved by and reported to the Lahontan Water Board at least 30 days in advance. Any groundwater wells removed must be replaced within a reasonable time, at a location approved by the Lahontan Water Board. With written justification, the Lahontan Water Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all work must be completed in accordance with California Department of Water Resources Bulletin 74-90, "California Well Standards," Monitoring Well Standards Chapter, Part III, Sections 16-19. Well destruction reports must be submitted electronically to the Lahontan Water Board and the Department of Water Resources.
43. **Extensions** – In the event compliance cannot be achieved within the terms of this Order, the Discharger(s) may request, in writing, an extension of the time specified. The extension request must include an explanation why the specified date could not or will not be met and justification for the requested period of extension. Any extension request must be submitted as soon as the situation is recognized and no later than the compliance date. Extension requests not approved in writing with reference to this Order are considered denied.
44. **Delegated Authority to the Executive Officer** – The Lahontan Water Board, through its Executive Officer, may revise this Order as additional information becomes available. Upon request by the Dischargers, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Dischargers under this Order. The authority of the Lahontan Water Board, as contained in the Water Code, to order investigation and cleanup, in addition to that described herein, is in no way limited by this Order.
- Reference herein to determinations and considerations to be made by the Lahontan Water Board regarding the terms of the CAO must be made by the Executive Officer or his/her designee. The decisions and directives outlined in this CAO are made by the Executive Officer under the authority of the Lahontan Water Board pursuant to Water Code section 13223.
45. **Continue Uninterrupted Cleanup and Abatement** – The Dischargers must continue any remediation or monitoring activities until such time as the Executive Officer determines that sufficient cleanup has been accomplished and this Order has been rescinded.
46. **Cost Reimbursement** – The Discharger must reimburse the Lahontan Water Board for reasonable costs incurred to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects of the waste, or other remedial action required by this CAO. To set up cost reimbursement, each

Discharger must provide the Lahontan Water Board with the name(s) and contact information for the person(s) who will be receiving billing statements from the State Water Board.

47. **Reports Submitted Under Penalty of Law** – The Lahontan Water Board, under the authority given by Water Code section 13267, subdivision (b)(1), requires you to include a perjury statement in all reports submitted under this Order. The perjury statement must be signed by a senior authorized representative (not by a consultant). The perjury statement must be in the following format:

“I, [NAME], certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision, in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

48. **Electronic Submission of Reports** – On September 30, 2004, the State Water Resources Control Board (SWRCB) adopted Resolution 2004-0058 to revise regulations in Chapter 30, Division 3 of Title 23 of the California Code of Regulations. Resolution 2004-0058 authorizes the SWRCB to establish electronic submission of compliance data via the Internet to the State Water Board’s online reporting database (GeoTracker). The Dischargers must upload all available data electronically concerning the Site to GeoTracker including technical reports in portable document format (GEO\_REPORT), laboratory analytical data in electronic deliverable format (EDF), depth-to-water field measurements in text file format (GEO\_WELL), sampling location and Site maps in text file format (GEO\_MAP), boring logs in portable document format (GEO\_BORE), and permanent sampling locations must be linked to the GeoTracker map interface by uploading survey data including latitude and longitude (GEO\_XY) and elevation data (GEO\_Z). Hard copy paper reports, which have already been electronically uploaded to GeoTracker, are no longer required to be submitted to the Lahontan Water Board. Information regarding the electronic submittal of information can be found on the SWRCB website ([https://www.waterboards.ca.gov/ust/electronic\\_submittal/index.html](https://www.waterboards.ca.gov/ust/electronic_submittal/index.html)).
49. **Enforcement** – Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, imposed either administratively by the Lahontan Water Board or judicially by the Superior Court in accordance with Water Code sections 13268, 13304, 13308, and/or 13350, and/or referral to the Attorney General of the State of California.
50. **Bankruptcy** – None of the obligations imposed by this Order on the Dischargers are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are



imposed pursuant to the police powers of the State of California intended to protect the public health, safety, welfare, and environment.

Ordered by: \_\_\_\_\_ Date: \_\_\_\_\_

MICHAEL R. PLAZIAK, PG  
EXECUTIVE OFFICER

List of Figures:

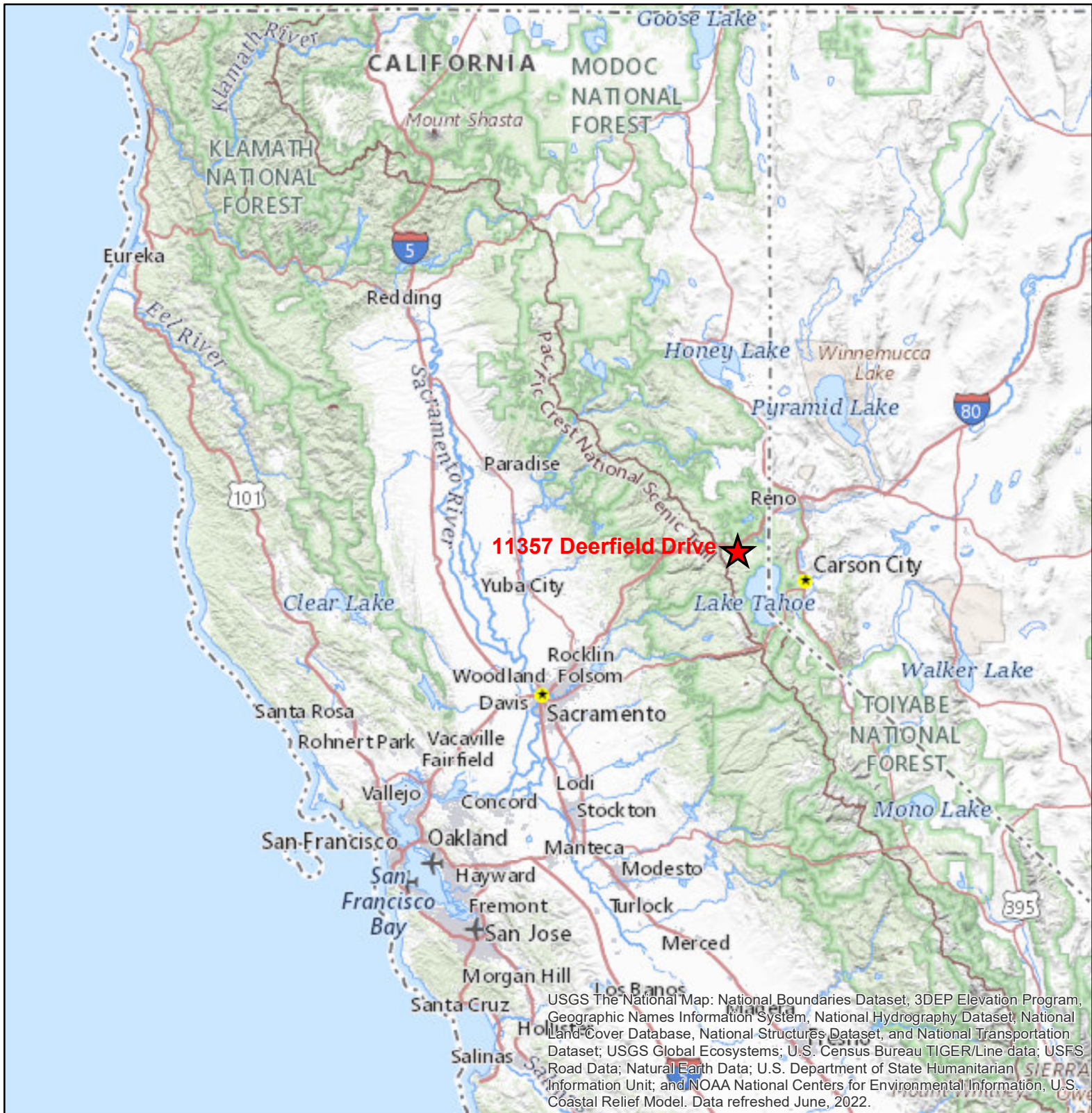
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- Figure 3: Building Layout Map (1985-2007)
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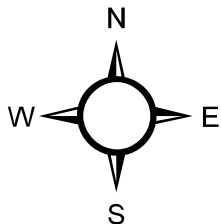
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Attachments:

- Attachment A: Additional Corrective Action Requirements
  - Attachment B: Time Schedule
  - Attachment C: Monitoring and Reporting Program for Cleanup and Abatement
- Order No: R6T-2024-(TENTATIVE)



0 30 60 120 Miles






Site Vicinity Map  
11357 Deerfield Drive  
Truckee, CA

Date: 02/16/2023

Figure: 1



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

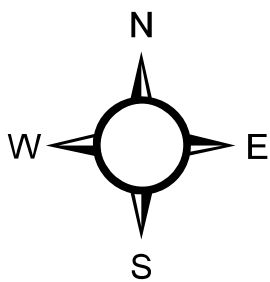
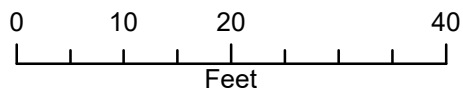
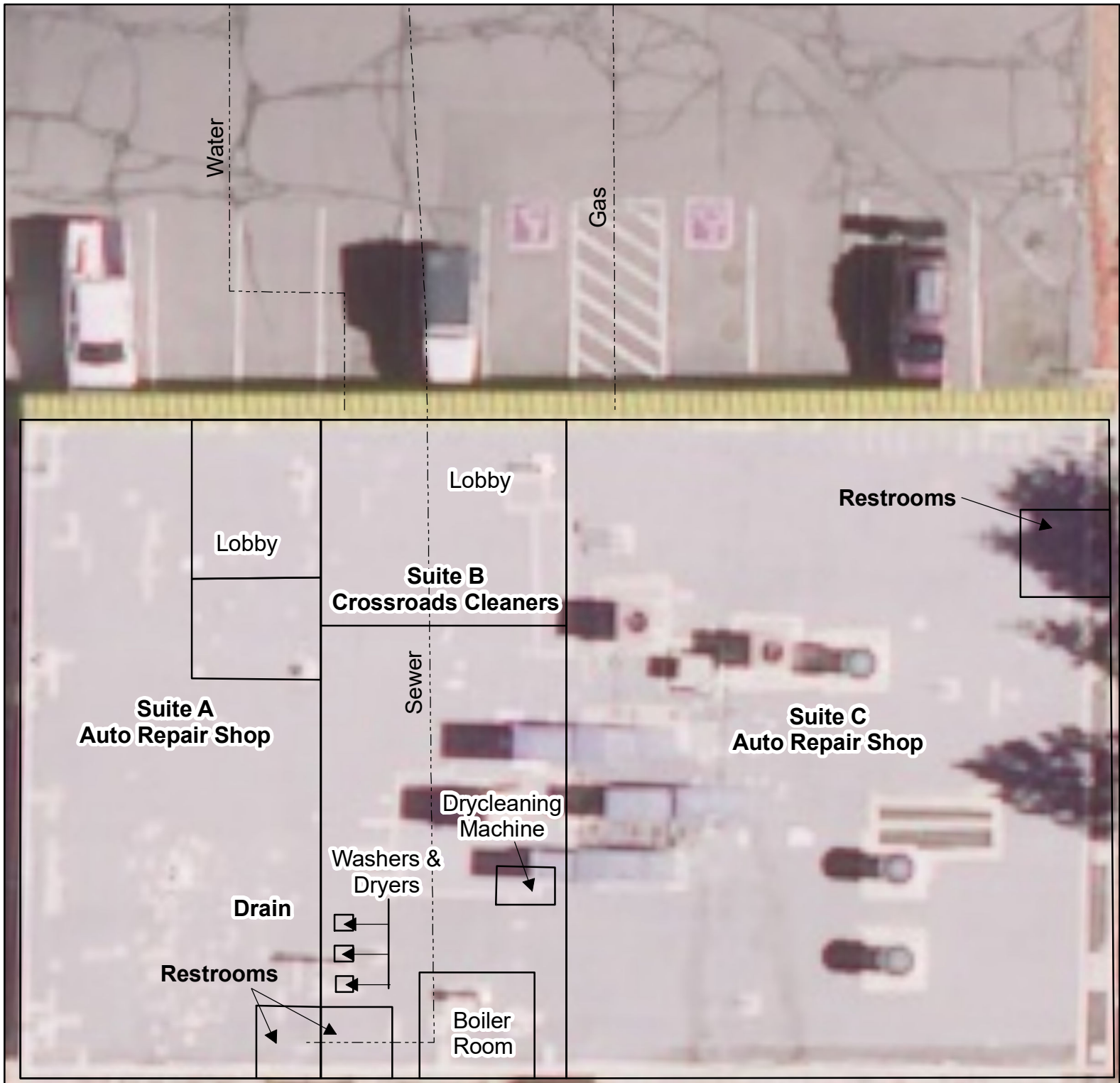
<b>Legend</b>	
	11357 Deerfield Drive
	Commerical Properties
	Residential Housing



Site Location Map  
11357 Deerfield Drive  
Truckee, CA

Date: 2/16/2024

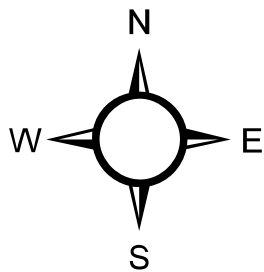
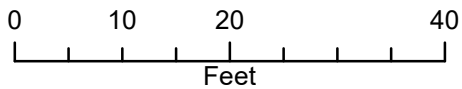
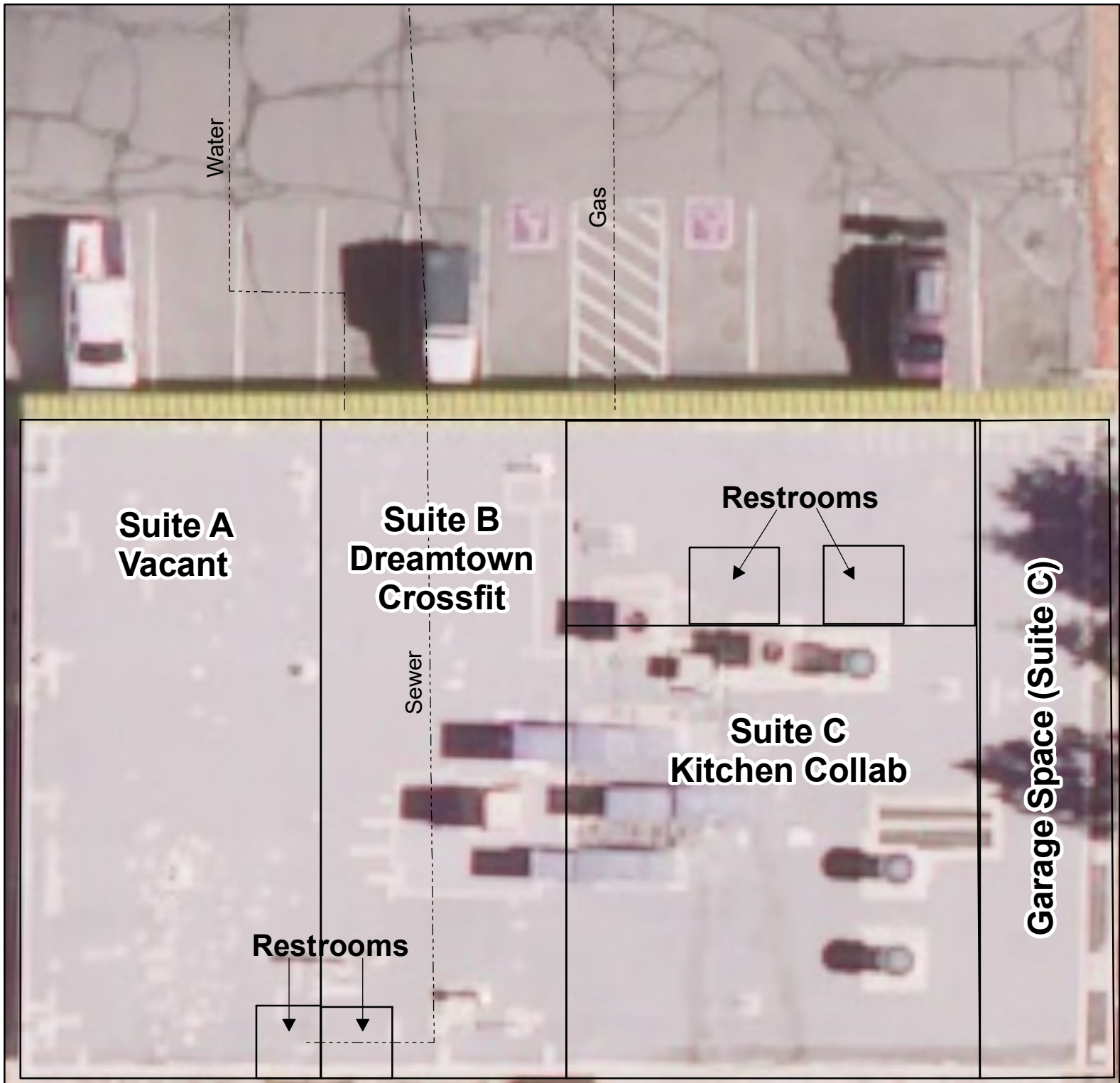
Figure: 2



Building Layout (1985-2007)  
11357 Deerfield Drive  
Truckee, CA

Date: 03/21/20024

Figure: 3






Building Layout (Present)  
11357 Deerfield Drive  
Truckee, CA

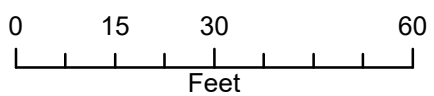
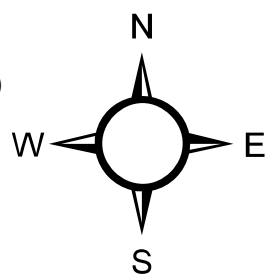
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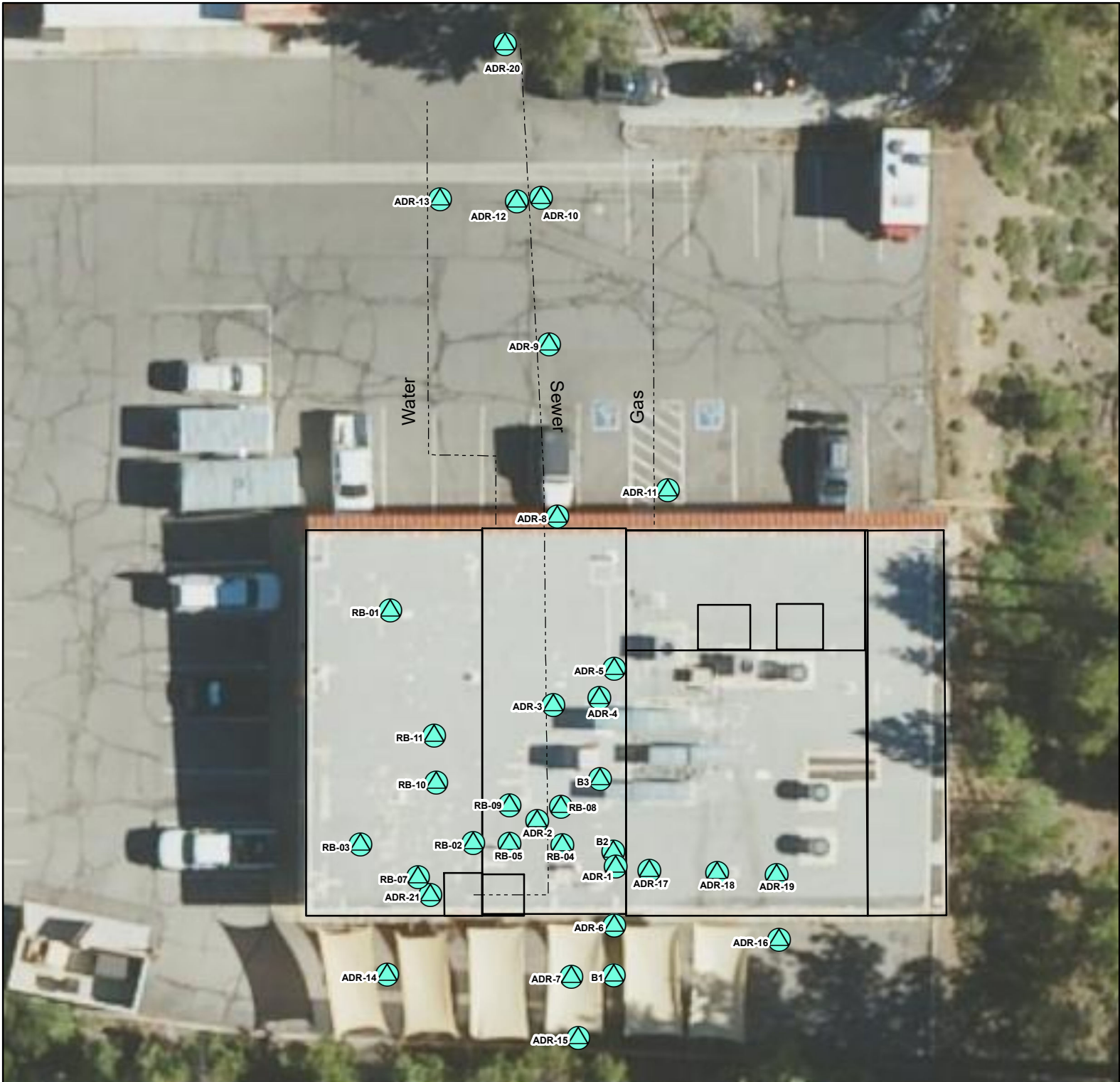


### Legend




-  Indoor Air Sampling Locations
-  Utility Lines
-  Building Footprint (Present)

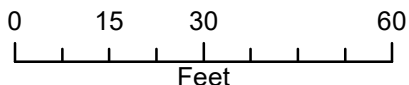
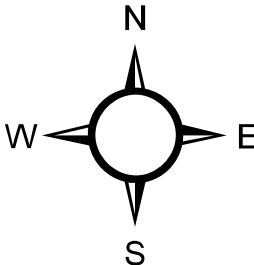


	Indoor Air Sampling Locations 11357 Deerfield Drive Truckee, CA
	Date: 03/22/2024
Figure: 5	
Data Sources: 1) ADR Environmental, Inc., Indoor Air Survey Report, Figure 6., June 8, 2007; 2) Roux Associates, Inc., Temporal Indoor Air Investigation Report, Figure 2., August 17, 2023	



# Legend

-  Soil Vapor Sampling Locations
-  Utility Lines
-  Building Footprint (Present)



Soil Vapor Sampling Locations  
 11357 Deerfield Drive  
 Truckee, CA






Date: 03/22/2024

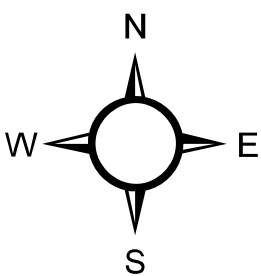
Figure: 6

Data Sources: 1) ADR Environmental Group, Inc., Addendum to Report of Subsurface Investigation, Figure 2., February 15, 2006.; 2) Roux Associates, Inc., Post-Vacancy Environmental Assessment Sampling Report, Figure 2., August 8, 2022.; 3) Roux Associates, Inc., Temporal Indoor Air Investigation Report, Figure 2., August 17, 2023.



**Legend**

-  Groundwater Sampling Locations
-  Groundwater Flow Direction
-  Groundwater Contours
-  Utility Lines
-  Building Footprint (Present)

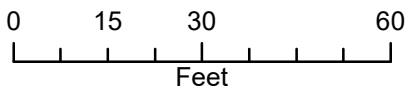


Groundwater Sampling Locations  
11357 Deerfield Drive  
Truckee, CA

Date: 03/22/2024

Figure: 7




Data Sources: 1) ADR Environmental Group, Inc., Groundwater Investigation Report, Figure 2., June 6, 2007.; 2) ADR Environmental Group, Inc., First Quarter 2008 Groundwater Monitoring Report, Figure 2., May 1, 2008.

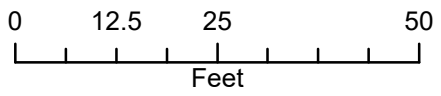
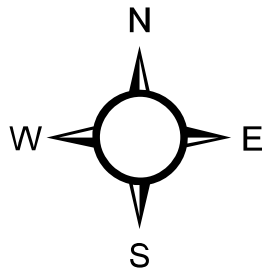







# Legend

-  Soil Sample Locations
-  Utility Lines
-  Building Footprint (Present)



	Soil Sampling Locations 11357 Deerfield Drive Truckee, CA
	Date: 03/22/2024
Figure: 8	
Data Sources: ADR Environmental Group, Inc., Addendum to Report of Subsurface Investigation, Figure 2., February 15, 2006.; 2) ADR Environmental, Inc., Groundwater Investigation Report, Figure 6., June 6, 2007.; 3) Roux Associates, Inc., Temporal Indoor Air Investigation Report, Figure 2., August 17, 2023.	

**TABLE 1: Indoor Air Sampling Results**  
 11357 Deerfield Drive, Truckee  
 Concentrations are in ug/m<sup>3</sup> unless otherwise noted

Sample ID	Sample Date	Start Time	Stop Time	Total Sampling Time (min)	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (EBz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)	1,2-Dichloroethane	1,4-Dichlorobenzene	Carbon Tetrachloride	Chloromethane	Chloroform	Radon (pCi/L)	
<b>SUITE A</b>																									
#3	May-07	0811	1609	478	--	3.4	--	--	--	--	--	--	5.3	--	<0.19	<0.060	--	<0.94	--	--	--	--	--	--	--
IA-3	Oct-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2
IA-4	Oct-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3655
<b>SUITE B</b>																									
#1	May-07	0830	1622	472	--	1.3	--	--	--	--	--	--	130	--	<0.18	<0.059	--	<0.91	--	--	--	--	--	--	--
#2	May-07	0832	1626	474	--	1.4	--	--	--	--	--	--	200	--	<0.18	<0.059	--	<0.91	--	--	--	--	--	--	--
IA-1	Oct-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5734
IA-2	Oct-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5789
RIA-1	Feb-23	--	--	--	<826	1.15	--	0.341	--	--	--	--	0.396	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	0.093	<0.042	0.485	1.23	<0.036	--	--
RIA-1	Jun-23	--	--	--	<162.37	0.326	--	1.47	--	--	--	--	0.159	<0.0414	<0.0214	<0.0115	<0.0143	<0.0111	0.153	<0.0132	0.794	1.58	<0.0254	--	--
RIA-2	Feb-23	--	--	--	<826	1.12	--	0.362	--	--	--	--	0.42	<0.107	1.40	<0.0511	<0.0793	<0.0793	0.092	0.099	0.506	1.33	<0.036	--	--
RIA-2	Jun-23	--	--	--	<162.37	0.283	--	0.144	--	--	--	--	0.160	<0.0414	<0.0214	<0.0115	<0.0143	<0.0111	0.102	<0.0132	0.825	1.60	0.256	--	--
<b>SUITE C</b>																									
#5	May-07	0758	1558	480	--	0.98	--	--	--	--	--	--	4.5	--	<0.20	<0.066	--	<1.0	--	--	--	--	--	--	--
#5 (DUP)	May-07	--	--	--	--	1.2	--	--	--	--	--	--	4.3	--	<0.20	<0.066	--	<1.0	--	--	--	--	--	--	--
RIA-3	Feb-23	--	--	--	<826	1.61	--	0.364	--	--	--	--	<0.136	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	<0.002	<0.042	0.469	1.23	<0.036	--	--
RIA-3	Jun-23	--	--	--	<162.37	7.12	--	2.33	--	--	--	--	0.151	0.311	<0.0214	<0.0115	<0.0143	<0.0111	<0.0186	<0.0132	0.636	1.68	<0.0254	--	--
RIA-4	Feb-23	--	--	--	<826	1	--	0.564	--	--	--	--	<0.136	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	<0.002	<0.042	0.486	1.25	<0.036	--	--
RIA-4	Jun-23	--	--	--	<162.37	3.99	--	3.74	--	--	--	--	<0.0170	<0.0414	<0.0214	<0.0115	<0.0143	<0.0111	0.153	0.132	0.800	1.65	<0.0254	--	--
<b>OUTDOOR</b>																									
#4	May-07	0805	1503	478	--	<0.37	--	--	--	--	--	--	<0.31	--	<0.18	<0.059	--	<0.91	--	--	--	--	--	--	--
RAA-1	Feb-23	--	--	--	<826	1.02	--	0.219	--	--	--	--	<0.136	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	<0.002	<0.042	0.486	1.2	<0.036	--	--
RAA-1	Jun-23	--	--	--	<162.37	0.304	--	<0.011	--	--	--	--	0.170	7.18	<0.0214	<0.0115	<0.0143	<0.0111	<0.0186	0.0132	0.750	1.42	<0.025	--	--
RAA-2	Feb-23	--	--	--	<826	0.843	--	0.198	--	--	--	--	<0.136	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	<0.002	<0.042	0.515	1.22	<0.036	--	--
RAA-2	Jun-23	--	--	--	<162.37	0.196	--	<0.011	--	--	--	--	0.472	<0.0414	<0.0214	<0.0115	<0.0143	<0.0111	<0.0186	0.0132	0.781	1.48	<0.025	--	--
RAA-3	Feb-23	--	--	--	<826	0.815	--	0.194	--	--	--	--	<0.136	<0.107	<0.0793	<0.0511	<0.0793	<0.0793	<0.002	<0.042	0.477	1.2	<0.036	--	--
RAA-3	Jun-23	--	--	--	<162.37	0.179	--	<0.011	--	--	--	--	0.298	<0.0414	<0.0214	<0.0115	<0.0143	<0.0111	<0.0186	0.0132	0.794	1.48	<0.025	--	--

**TABLE 1: Indoor Air Sampling Results**  
 11357 Deerfield Drive, Truckee  
 Concentrations are in ug/m<sup>3</sup> unless otherwise noted

Sample ID	Sample Date	Start Time	Stop Time	Total Sampling Time (min)	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (EBz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis 1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans 1,2-DCE)	1,2-Dichloroethane	1,4-Dichlorobenzene	Carbon Tetrachloride	Chloromethane	Chloroform	Radon (pCi/L)		
<b>Commercial Indoor Air ESLs (Cancer)</b>					NC	0.42	NC	4.9	NC	NC	47	0.36	2	3	NC	0.16	NC	NC	0.47	1.1	2	NC	0.53			
<b>Commercial Indoor Air ESLs (Non-Cancer)</b>					2500	13	1300	4400	440	440	13000	13	180	8.8	35	440	310	350	31	3500	180	390	430			
<b>Short-Term Urgent Action Trigger Level</b>					NL	NL	NL	NL	NL	NL	NL	NL	NL	8	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL		
<b>Short-Term Action Trigger Level Urgent Response Level</b>					NL	NL	NL	NL	NL	NL	NL	NL	NL	24	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	

Notes:

1. NC = Non-carcinogen
2. NL = Non listed
3. -- = No data available

**TABLE 2: Soil Vapor Sampling Results**  
 11357 Deerfield Drive, Truckee  
 Concentrations are in ug/m3 unless otherwise noted

Sample ID	Sample Date	Sample Depth	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)	Radon (pCi/L)
<b>SUITE A</b>																	
ADR-21	Dec-05	3	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
RB-01-SV	Feb-20	4.5	<826	1.53	2.74	<0.867	--	<0.867	<0.721	--	10.3	<1.07	<0.793	<0.511	<0.793	<0.793	--
RB-02-SV	Feb-20	4.8	1,710	6.9	8.17	1.49	--	1.66	2.8	--	2.04	1.69	1,920	376	27.2	61.0	--
RB-03-SV	Feb-20	4.7	<826	1.75	2.46	<0.867	--	<0.867	<0.721	--	17.9	<1.07	4.72	0.92	<0.793	<0.793	--
RB-07-SV	Sep-22	3	10,000	24	27	<2.7	7.2	2.9	5.3	--	4.4	7.9	35	44	<2.5	3.1	--
	Oct-22	3	37,000	3	2.7	<2.2	<4.3	<2.2	6.7	--	13	7.2	14	9.7	<2.0	<2.0	634
RB-10-SV	Sep-22	2.9	5,100	18	25	<5.2	<10	<5.2	<4.3	--	<8.1	8.3	28	10	<4.8	<4.8	--
	Oct-22	2.9	2,300	5.7	7.3	<1.9	<3.8	1.9	5.6	--	14	8.2	29	1.8	<1.7	2.1	273
RB-11-SV	Sep-22	2.7	3,100	20	25	<4.3	11	4.5	<3.6	--	75	8.1	9.3	<2.6	<4.0	<4.0	--
	Oct-22	2.7	1,100	2.2	2.5	<1.9	<3.8	<1.9	2.1	--	3.2	4.1	6.2	<1.1	<1.7	<1.7	102
<b>SUITE B</b>																	
B2	Jan-04	4	--	<RL	<RL	--	<RL	--	--	--	<RL	--	22,000	5,200	<RL	1000	--
B3	Jan-04	3	--	<RL	<RL	--	<RL	--	--	--	<RL	--	<RL	<RL	<RL	<RL	--
ADR-1	Oct-05	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	5,700	<0.1	1,900	<0.1	<0.1	<0.1	--
ADR-2	Oct-05	3	--	130	150	<0.1	<0.1	120	--	--	530	200	40,000	1,300	<0.1	290	--
ADR-3	Oct-05	4	--	<0.1	130	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	4,900	320	<0.1	<0.1	--
ADR-4	Oct-05	1.5	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	730	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-5	Oct-05	1.5	--	110	140	<0.1	<0.1	140	--	--	510	<0.1	160	<0.1	<0.1	<0.1	--
RB-04-SV	Sep-22	2.6	22,000	48	55	<52	<100	<52	<43	--	10,000	5,200	46,000	210	87	450	--
	Oct-22	2.6	37,000	16	14	<5.0	<10	<5.0	<4.1	--	97,000	21,000	74,000	23	35	190	698
RB-05-SV	Sep-22	2	4,300	24	33	<12	<24	<12	<9.9	--	<19	<15	1,200	120	<11	27	--
	Oct-22	2	37,000	<8.8	<10	<12	<24	<19	13	--	<19	<15	1,400	61	<11	23	280
RB-05-SV DUP	Sep-22	2	4,500	23	29	<13	<26	<20	<11	--	<20	<16	1,200	110	<12	25	--
RB-08-SV	Sep-22	2.9	17,000	[<51]	<60	<69	<140	<69	<58	--	[<110]	<86	9,400	250	<63	130	--
	Oct-22	2.9	14,000	[<35]	<41	<48	<96	<48	<40	--	[<75]	<59	5,500	36	<44	<44	772

**TABLE 2: Soil Vapor Sampling Results**  
 11357 Deerfield Drive, Truckee  
 Concentrations are in ug/m3 unless otherwise noted

Sample ID	Sample Date	Sample Depth	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)	Radon (pCi/L)
RB-09-SV	Sep-22	2.8	5,200	17	25	<6.9	<14	<11	<5.8	--	<11	<8.6	57	8.9	<6.3	<8.6	--
	Oct-22	2.8	2,700	<1.4	2.6	<1.9	<3.8	6.6	6.1	--	6.6	4.4	25	1.5	<1.7	4.4	450
<b>SUITE C</b>																	
ADR-17	Dec-05	5	--	170	250	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	8,900	730	<0.1	430	--
ADR-18	Dec-05	5	--	340	240	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	4,800	260	<0.1	330	--
ADR-18 (DUP)	Dec-05	5	--	300	220	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	4,500	230	<0.1	290	--
ADR-19	Dec-05	5	--	410	250	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	410	<0.1	<0.1	<0.1	--
<b>SEWER UTILITY LINE</b>																	
ADR-8	Oct-05	5	--	520	330	<0.1	<0.1	150	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-9	Oct-05	5	--	210	180	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-10	Oct-05	5	--	140	170	<0.1	<0.1	140	--	--	2,400	140	<0.1	<0.1	<0.1	<0.1	--
ADR-12	Dec-05	5	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	1,200	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-20	Dec-05	5	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	150	<0.1	<0.1	<0.1	<0.1	<0.1	--
<b>NATURAL GAS UTILITY LINE</b>																	
ADR-11	Dec-05	5	--	330	190	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
<b>WATER UTILITY LINE</b>																	
ADR-13	Dec-05	4.5	--	100	140	<0.1	<0.1	<0.1	--	--	350	<0.1	<0.1	<0.1	<0.1	<0.1	--
<b>REAR OF BUILDING</b>																	
ADR-6	Oct-05	5	--	160	200	<0.1	<0.1	130	--	--	<0.1	160	47,000	3,900	450	1,800	--
ADR-7	Oct-05	5	--	<0.1	100	<0.1	<0.1	<0.1	--	--	310	<0.1	180	<0.1	<0.1	<0.1	--
ADR-14	Dec-05	4	--	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-15	Dec-05	5	--	<0.1	<0.1	<0.1	<0.1	110	--	--	570	<0.1	<0.1	<0.1	<0.1	<0.1	--
ADR-16	Dec-05	4	--	570	440	<0.1	<0.1	130	--	--	<0.1	<0.1	560	110	<0.1	<0.1	--

**TABLE 2: Soil Vapor Sampling Results**  
 11357 Deerfield Drive, Truckee  
 Concentrations are in ug/m3 unless otherwise noted

Sample ID	Sample Date	Sample Depth	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)	Radon (pCi/L)
<b>Vapor Intrusion Risk ESLs (Cancer Risk)</b>			NC	14	NC	160	NC	NC	1,600	20	67	100	NC	5.2	NC	NC	NL
<b>Vapor Intrusion Risk ESLs (Non-Cancer Hazard)</b>			83,000	440	44,000	15,000	15,000	15,000	44,000	7,300	580	290	1,200	15,000	10,000	12,000	NL
<b>Short-Term Action Trigger Levels (Subslab Soil Gas)</b>			NL	NL	NL	NL	NL	NL	NL	NL	NL	270	NL	NL	NL	NL	NL

Notes:

1. <RL = Less than the reporting limit
2. [Value] = Reporting limit greater than the cancer ESL
3. NC = Non-carcinogen
4. NL = Not listed
5. -- = No data

**TABLE 3: Groundwater Sampling Results**

11357 Deerfield Drive, Truckee

Concentrations are in ug/L

Sample ID	Sample Date	Sample Depth	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)	Bromodichloromethane (BDCM)	Dibromochloromethane (DBCM)	Bromoform (TBM)
<b>DOWNGRAIENT</b>																			
DB-1 Grab	Dec-05	65	--	<RL	<RL	--	--	<RL	--	--	<RL	<RL	<RL	<RL	--	<RL	--	--	--
MW-1	May-07	26	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.8</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Aug-07	33	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-07	31	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-08	29	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jul-09	31	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<b>0.8</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jan-10	29	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	May-07	28	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<b>5.2</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Aug-07	35	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.5</b>	<0.5	<b>4.3</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-07	31	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<b>2.6</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-08	30	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.5</b>	<0.5	<b>0.8</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jul-09	33	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<b>2.2</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jan-10	30	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<b>0.7</b>	<0.5	<0.5	<0.5	<0.5	<b>0.7</b>	<b>1.7</b>
<b>UPGRAIENT</b>																			
MW-3	May-07	22	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Aug-07	27	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.6</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-07	32	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>1.4</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-08	27	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.9</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jul-09	27	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Jan-10	27	--	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5	<b>0.8</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
<b>CA DDW Primary MCL</b>			NL	<b>1</b>	<b>150</b>	<b>300</b>	<b>1750</b>	<b>1750</b>	<b>13</b>	NL	<b>5</b>	<b>5</b>	<b>6</b>	<b>0.5</b>	<b>6</b>	<b>10</b>	<b>80</b>	<b>80</b>	<b>80</b>
<b>Groundwater Vapor Instrusion Risk ESL</b>			NL	<b>1.8</b> CR	<b>4900</b> NCR	<b>15</b> CR	<b>1600</b> NCR	<b>1600</b> NCR	<b>2000</b> CR	<b>20</b> CR	<b>2.8</b> CR	<b>7.5</b> CR	<b>210</b> NCR	<b>0.14</b> CR	<b>280</b> NCR	<b>920</b> NCR	<b>3.8</b> CR	NL	<b>510</b> CR

Notes:

1. <RL = Less than reporting Limit    2. -- = No data    3. CR = Cancer risk    4. NCR = Non-cancer risk    5. MCL = Maximum Contaminant Level    6. NL = None listed

**TABLE 4: Soil Sampling Results**

11357 Deerfield Drive, Truckee

Concentrations are in mg/Kg

Sample ID	Sample Date	Sample Depth (ft)	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)
<b>SUITE A</b>																
RB-10	Sep-22	3	--	--	--	--	--	--	--	--	<0.0046	--	<0.0046	--	--	--
<b>SUITE B</b>																
B1	Jan-04	1.5	--	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
B2	Jan-04	1	--	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<b>0.012</b>	<RL	<RL	<RL	<RL	<RL
RB-04	Sep-22	3	--	--	--	--	--	--	--	--	<b>0.014</b>	--	<b>0.15</b>	--	--	--
RB-05	Sep-22	2.5	--	--	--	--	--	--	--	--	<0.0043	--	<b>0.013</b>	--	--	--
RB-08	Sep-22	2.5	--	--	--	--	--	--	--	--	<0.0043	--	<b>0.032</b>	--	--	--
RB-09	Sep-22	2.8	--	--	--	--	--	--	--	--	<0.0042	--	<0.0042	--	--	--
<b>SUITE C</b>																
<b>No soil data available</b>			--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>FRONT OF BUILDING</b>																
MW1	Apr-07	37	--	<0.005	<0.005	<0.005	<0.010	<0.005	--	<0.005	<0.005	<0.005	<0.005	[<0.005]	<0.005	<0.005
MW2	Apr-07	37	--	<0.005	<0.005	<0.005	<0.010	<0.005	--	<0.005	<0.005	<0.005	<0.005	[<0.005]	<0.005	<0.005
<b>REAR OF BUILDING</b>																
B3	Jan-04	1	--	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
MW3	Apr-07	37	--	<0.005	<0.005	<0.005	<0.010	<0.005	--	<0.005	<0.005	<0.005	<0.005	[<0.005]	<0.005	<0.005



**TABLE 4: Soil Sampling Results**

11357 Deerfield Drive, Truckee

Concentrations are in mg/Kg

Sample ID	Sample Date	Sample Depth (ft)	Gasoline (TPH-g)	Benzene (Bz)	Toluene (PhMe)	Ethylbenzene (Ebz)	m,p-Xylene (m,p-Xyl)	o-Xylene (o-Xyl)	Methyl-tertiary-butyl ether (MTBE)	Naphthalene (Nph)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-dichloroethene (cis1,2-DCE)	Vinyl Chloride (VC)	1,1-Dichloroethene (1,1-DCE)	trans-1,2-dichloroethene (trans1,2-DCE)
Soil Tier 1 ESL			100 Odor	0.025 Leaching	3.2 Leaching	0.43 Leaching	2.1 Leaching	2.1 Leaching	0.028 Leaching	0.042 Leaching	0.08 Leaching	0.085 Leaching	0.19 Leaching	0.0015 Leaching	0.54 Leaching	0.65 Leaching

Notes:

1. <RL = Less than the reporting limit
2. [Value] = Reporting limit greater than the ESL
3. -- = No data

**ATTACHMENT A  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION  
ADDITIONAL CORRECTIVE ACTION REQUIREMENTS  
FOR  
CLEANUP AND ABATEMENT ORDER R6T-2024-(TENTATIVE)**

Pursuant to California Code of Regulations, Title 23, section 3890 (et al.), the information required, as described below, must be submitted electronically to GeoTracker under Global Identification Number SL0605702754.

All investigation derived waste (e.g., drill cuttings, soil, groundwater) and waste generated during routine sampling must be containerized and clearly labeled pending transport for offsite disposal. The containers must be labeled in a manner that is easily interpreted by emergency response personnel as to the contents of the container and removed from the Site within 90 days of waste generation.

**1. Conceptual Site Model**

- A. **Components of the CSM:** The CSM must be based upon the actual data collected from the Site and identify data gaps (e.g., areas where further investigation is necessary). The CSM must include the following components at minimum:
- a. **Geology:** A description of the local geology including the references for published information used in the interpretation including any boring logs generated from past Site assessment activities. Cross sections must be indexed to the Site map or geologic map and must be located to best portray geologic features relevant to the release scenario. All active faults within one mile of the Site must be reported.
  - b. **Subsurface Lithology and Stratigraphy:** A description of the natural geologic materials underlying the building and surrounding area within 1,000 feet of the Site. The description must include all classified soils, geologic interpretation and mineral content.
  - c. **Hydrogeology:** Narrative and graphical descriptions of water bearing characteristics of the natural geologic materials of surface waters and groundwaters identified within one mile of the Site. Groundwater elevation, hydraulic conductivity, transmissivity, gradient, direction and velocity of groundwater flow, and stormwater runoff and runoff drainage patterns. Hydraulic connectivity between Donner Creek, the Truckee River and the Martis Valley groundwater subbasin must be determined and reported.
  - d. **Water Quality:** An evaluation, supported by water quality analysis, of the quality of water known to exist under and within one mile of the Site. The

evaluation must include the background water quality for all chlorinated solvents, petroleum hydrocarbons and related VOCs, pH, alkalinity, dissolved oxygen, dissolved hydrogen, oxygen reduction potential, chemical oxygen demand, electrical conductivity, temperature, nitrate, iron (II), sulfate, methane, magnesium, chloride, total dissolved solids, total organic carbon, and heavy metals.

- e. **Land Use:** The building construction details including utility service lines and floor drain locations and discharge points (past and present) must be identified. The land use description must also include current business operations being conducted at the Site, surrounding land uses of nearby properties and the connection points to the existing utility lines, and identify all domestic and municipal supply wells.
- f. **Sensitive Receptors:** A description of the potential human and ecological receptors. An evaluation of adjacent properties that may be affected by the release must be included.
- g. **Waste Identification:** A list of waste constituents currently or previously stored or handled at the Site and their distribution in the subsurface. A description of the primary and secondary sources of waste including waste storage areas, clarifiers, floor drains, sanitary sewer lines, and waste disposal areas must be identified. A complete description of the location, depth, and phase(s) of waste must be included.
- h. **Release Mechanism:** The primary release mechanism must be identified and discussed in detail.
- i. **Exposure Scenario:** An evaluation of the exposure media such as air, drinking water, and contaminated soil. The exposure scenario must include an evaluation of the preferential pathways such as, foundation cracks, utility service lines, discharges to floor drains, subsurface lithology such as fractures and sand lenses, and capping of vapors due to asphalt repaving activities.
- j. **Waste Degradation/Attenuation:** An evaluation of the ability of the naturally occurring Site conditions in the vadose zone and groundwater basin to degrade the chlorinated solvents and petroleum hydrocarbons. The evaluation must include an assessment of background water quality, oxygen levels in the vadose zone, distribution of waste in soil, soil gas, and groundwater, soil and aquifer matrix, groundwater concentrations of total organic carbon, and oxygen and carbon dioxide concentrations in the vadose zone. The evaluation must result in an estimate of the amount of time it will take for each waste constituent to reach background concentrations in soil and groundwater.

- k. **Summary of Previous Investigations:** A chronological summary of previous Site investigations conducted. The summary must include the sample collection methods and clearly describe the activities that were conducted.
  - l. **Tabulated Data:** Tabulated concentrations of the known waste constituents in all media including indoor air, soil vapor, soil, and groundwater.
  - m. **Laboratory Reports:** Copies of the laboratory analytical reports generated for each sampling event including the quality assurance/quality control data.
  - n. **Boring and Sampling Logs:** Copies of boring and sampling logs for soil vapor, soil and groundwater including logs generated from the remediation system network, if applicable.
  - o. **Data Gaps:** A narrative discussion of identified data gaps.
- B. **CSM Reporting Requirements:** The CSM must be submitted electronically according to the time schedule outlined in Attachment B and include all information required in section 1.A. The technical report must clearly describe the discharge scenario, distribution of wastes, exposure pathways, and data collection procedures.
- C. **Annual CSM Update Requirements:** The CSM must be updated annually and include any new information for the Site. The annual CSM updates must be submitted according to the time schedule outlined in Attachment B and may be submitted under the same cover with other corresponding technical reports.
- D. **Work Plan for Additional Site Assessment:** Any work plan prepared in response to the CSM, to conduct site assessment, characterization, and delineation of waste constituents at the Site, must comply with the site assessment requirements outlined in section 3.

## 2. Human Health and Ecological Risk Assessment

- A. **Components of the HHRA:** The HHRA must conform with the most current guidance documents including the Department of Toxic Substance Control (DTSC) *Preliminary Endangerment Assessment Guidance Manual*<sup>1</sup>, DTSC Human and Ecological Risk Office (HERO) *Human Health Risk Assessment (HHRA) Note 4* and *HHRA Note 3*<sup>2</sup>, DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*<sup>3</sup>, and DTSC *Final Draft*

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<sup>1</sup> DTSC. 2015. *Preliminary Endangerment Assessment Guidance Manual*. January. Website: [https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/06/PEA\\_Guidance\\_Manual.pdf](https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/06/PEA_Guidance_Manual.pdf).

<sup>2</sup> DTSC Human Health Risk resources page contains HHRA Note 4 and Note 3. Website: <http://www.dtsc.ca.gov/assessingrisk/humanrisk2.cfm#Guidance>.

<sup>3</sup> DTSC. 2011. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*. October. Website: [Vapor Intrusion | Department of Toxic Substances Control \(ca.gov\)](http://www.dtsc.ca.gov/vaporintrusion/Vapor_Intrusion_Department_of_Toxic_Substances_Control_(ca.gov)).

*Supplemental Guidance Screening and Evaluating Vapor Intrusion*<sup>4</sup>. The HHRA must include the following components at minimum:

- a. **Describe Exposure Pathways:** The HHRA must include a description of all exposure pathways that are determined complete for soil, groundwater and indoor air. Other pathways such as bioaccumulation must be included.
- b. **Assume Residential Land Use:** The HHRA must assume the land use for the Site is residential. Residential land use must be assumed because the most health-conservative exposure parameters are incorporated into that assumption, and it may eliminate the necessity of a land use covenant for case closure.
- c. **Tabulated Data:** The HHRA must provide tabulated concentrations, including units of measure, for all waste constituents identified at the Site for all media (e.g., soil, soil vapor, groundwater and indoor air). The concentrations must be compared to, as appropriate, the established background (naturally occurring) concentrations, United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL), Public Health Goals (PHG), Environmental Screening Levels (ESL), and California Division of Drinking Water Maximum Contaminant Level (MCL).
- d. **Risk Calculations:** The HHRA must provide the calculated cancer risk for carcinogenic waste and hazard quotient for carcinogenic and non-carcinogenic waste for all media.
- e. **Summation of Cancer Risks:** The HHRA must include a summation of the cancer risk from all carcinogens to obtain the total excess lifetime cancer risk posed by the waste.
- f. **Summation of Hazard Quotients:** The HHRA must include a summation of all hazard quotients for all carcinogens and noncarcinogens over all exposure media posed by the waste.
- g. **Mathematical Formulas:** The HHRA must provide mathematical formulas for all calculations made in the determination of the cancer risk and hazard quotients.
- h. **HHRA Uncertainties:** The HHRA must contain a discussion regarding any uncertainties in the HHRA. The discussion must focus on specific Site conditions which contribute most significantly to uncertainties in the risk and hazard estimates. Refrain from debating the validity of the default exposure factors and screening levels because such factors are generic to assumed

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<sup>4</sup> DTSC. 2023. *Final Draft Supplement Guidance: Screening and Evaluating Vapor Intrusion*. February. Website: [Vapor Intrusion | Department of Toxic Substances Control \(ca.gov\)](https://www.dtsc.ca.gov/VaporIntrusion/).

behavioral and physiological factors appropriate for humans in a residential setting.

- B. **ERA Requirements:** The ERA must conform with the most current guidance documents including the DTSC *Preliminary Endangerment Assessment Guidance Manual*<sup>5</sup>, and DTSC *Guidance for Ecological Risk Assessments*<sup>5</sup>.
- a. **Tabulated Data:** The ERA must contain a tabulated list of chemicals present at the Site that are of ecological concern, specifically to biota, and provide the type and name of biota present. The table must provide maximum and minimum concentrations, number of samples collected, number of detections, location of the detection and compare the results to the appropriate ESL.
  - b. **Special Status Species:** The ERA must include an analysis of special status species present at the Site and within one mile where the contaminants were detected.
  - c. **Off-Site Habitats:** The ERA must include an analysis of off-site habitats within one mile of the Site including locations of wildlife areas, preserves, reserves, sanctuaries, parks, natural areas, conservation areas, and maintained landscapes such as golf courses. The ERA must include a pathway assessment for all media including soil, soil vapor, groundwater, stormwater runoff and surface water. A qualitative description of the magnitude, duration, and frequency of exposure for biological receptors for each habitat type must be included.
  - d. **Habitat Map:** The ERA must include a habitat map for the biota being affected by the release from the Site and for the entire one-mile area evaluated.
  - e. **Qualitative Statement:** The ERA must include a qualitative statement that summarizes the findings of the evaluation. All conclusions must be clearly stated and supported based on the information collected.
- C. **HHRA and ERA Reporting Requirements:** The HHRA and ERA must be submitted electronically according to the time schedule outlined in Attachment B and include all information required in sections 2.A and 2.B. The technical reports may be submitted under the same cover as the CSM.
- D. **Annual HHRA and ERA Update Requirements:** The HHRA and ERA must be updated annually and include any new information for the Site. The annual updates must be submitted according to the time schedule outlined in Attachment B and may be submitted under the same cover and in conjunction with other corresponding technical reports.

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<sup>5</sup> DTSC. 1996. Guidance for Ecological Risk Assessment Part A and Part B. Website: [Ecological Risk Assessment | Department of Toxic Substances Control](#)

### 3. Site Assessment Work Plan

- A. **Work Plan Requirements:** The work plan must be prepared, signed, and stamped by an appropriately experienced California-licensed Professional Geologist or Professional Engineer. The Dischargers must include the following items in the work plan:
- a. **Site Map:** A Site map including the locations of proposed sampling, soil vapor probes and groundwater well construction.
  - b. **Tabulated Analytical Data:** Tabulated analytical data for all media sampled at the Site to include all past sampling events.
  - c. **Sampling and Analysis Plan:** A sampling and analysis plan (SAP) including the list of constituents to be analyzed, method of sample collection, depth of sample collection, and the name and certification of the analytical laboratory. The SAP must include the expected reporting limit and method detection limit obtainable by the analytical laboratory.
  - d. **Vapor Probe Construction Work Plan:** A work plan to install additional soil vapor probes must be submitted and clearly describe the installation methods that will be employed to install the probes. Permanent soil vapor probes must be constructed at the time of installation to allow repeated sampling to be conducted. Soil lithology must be logged by an appropriately experienced and California-licensed Professional Geologist or Professional Engineer.

The California Environmental Protection Agency's *Advisory Active Soil Gas Investigations*, dated July 2015, can be used as a reference and guidance for project activities involving soil vapor investigation design, vapor probe construction, sample collection, handling, analysis and data reporting.

- e. **Groundwater Monitoring Well Installation Work Plan:** A work plan to install groundwater wells must be submitted to obtain Lahontan Water Board staff concurrence with specific well construction, installation procedures and sample locations prior to implementation of installation activities.

The well installation work plan must include: 1) the drilling method; 2) well installation method and proposed construction details; and 3) a site map depicting proposed well locations. Soil lithology must be logged by an appropriately experienced and California-licensed Professional Geologist or Professional Engineer.

The California Environmental Protection Agency's *Well Design and Construction for Monitoring Groundwater at Contaminated Sites*, dated June 2014, can be used as a reference and guidance for project activities involving well installation, sample collection, handling, analysis, and data reporting.

- f. **Investigation Derived Waste Handling:** All investigation derived waste must be containerized and clearly labeled pending transport for offsite disposal. The containers must be labeled in a manner that is easily interpreted by emergency response personnel as to the contents of the container and removed from the Site within 90 days of waste generation.
- B. **Time Schedule to Implement the Work Plan:** The approved work plan must be implemented according to the time schedule outlined in Attachment B.
- C. **Site Assessment Completion Report:** Submit a Site Assessment Completion Report within 45 days of receiving the last laboratory analytical report in accordance with the time schedule outlined in Attachment B. The following information must be included in the final report:
  - a. **Field Logs:** Boring logs with lithology, depth to groundwater, mineral descriptions, total boring depth, and indications of visible or olfactory contamination.
  - b. **Sampling Logs:** Soil vapor, soil and groundwater sampling logs. Vapor probes sampling logs must include the purge rate, shut in and leak test details. Groundwater well sampling logs must include purge rate and pump placement.
  - c. **Data Collection Procedures:** A narrative discussion related to the method of sample collected and work conducted to collect soil, soil vapor, indoor air, and groundwater samples.
  - d. **Calculations:** The calculations used to determine purge rate, purge volume, and any other mathematical equations used to assess conditions at the Site.
  - e. **Construction Details:** Soil vapor probe and groundwater well construction details including final depth, screened interval, subsurface lithology and stratigraphy, and construction materials.
  - f. **Site Map:** A Site map of sampling locations including soil, soil vapor, and groundwater.
  - g. **Groundwater Hydrology Details:** The hydraulic conductivity, transmissivity, direction, gradient and velocity of groundwater flow.
  - h. **Tabulated Analytical Data:** Tabulated analytical data including soil, soil vapor, and groundwater.
  - i. **Laboratory Analytical Reports:** Copies of laboratory analytical reports.
  - j. **Quality Assurance/Quality Control Data:** QA/QC data including canister certification reports and calibration reports.



- k. **Deviations from the Work Plan:** A discussion to identify deviations from the approved work plan including the sampling locations.
- l. **Waste Manifests:** Copies of waste manifests generated during routine pickup of waste containment drums.

#### 4. Public Participation Plan

- A. **Submit a baseline community assessment:** Provide information describing the demographics, and current and future land use scenarios for the Site and surrounding area within a half-mile radius according to the time schedule outlined in Attachment B.
- B. **Submit an interested persons contact list:** Identify a notification area that encompasses at least an aerial extent of a 1000-foot radius surrounding the Site, so that future fact sheets or notifications may be distributed to all property owners, tenants, residents, and affected and potentially affected persons within the defined area. A list of names and addresses for all property owners in the above delineated groups must be provided. A list of contacts for other interested persons such as local, state, and federal public agencies, environmental groups, and community groups, must also be provided. The interested persons contact list must be submitted according to the time schedule outlined in Attachment B.
- C. **Submit a fact sheet:** Submit a draft fact sheet that provides information about the Site including a summary of the Site history, known discharges of wastes, investigation and cleanup activities to date, a description of any planned site assessment and remediation activities, and an illustrative map of the Site and details of the surrounding areas. The fact sheet should be appropriately targeted to the literacy and translational needs of the community and must be submitted according to the time schedule outlined in Attachment B.
- D. **Deliver the approved fact sheet:** Deliver an approved fact sheet to all interested persons according to the time schedule outlined in Attachment B.

#### 5. Mitigation and Remediation Plans

- A. **Vapor Intrusion Mitigation:** Implement vapor intrusion to indoor air mitigation measures in each suite during business operation hours until cleanup goals are achieved, and a notice of the CAO termination and case closure is issued by the Executive Officer.
- B. **Interim Remedial Action Plan:** Submit an Interim Remedial Action Plan (IRAP) electronically for review to evaluate remedial alternatives for areas where COCs exceed screening levels for protection of human health and the environment according to the time schedule outlined in Attachment B. The IRAP must address on-Site and off-Site areas (if applicable) and provide the technical basis for selecting and designing final remedial measures.

- a. **IRAP Requirements:** The IRAP must clearly describe the proposed remediation alternative and actions that will be taken to immediately reduce vapor concentrations under each suite of the building. The proposed method must be accompanied by an evaluation of the published information regarding the success of the technique and applicability to Site conditions.
  - b. **IRAP Implementation:** The scope of work outlined in the approved plan must be implemented according to the time schedule outlined in Attachment B.
  - c. **IRAP Progress Report:** Quarterly IRAP progress reports must be submitted by the time schedule outlined in the time schedule in Attachment B.
- C. **Final Remedial Action Plan:** Develop and electronically submit a comprehensive Remedial Action Plan(s) (RAP) for cleanup of wastes in the soil matrix and groundwater originating from the Site. The RAP must be submitted according to the time schedule outlined in Attachment B and include the following items at minimum:
- a. **RAP Requirements:** The following items must be included in the RAP:
    - 1. **Feasibility Study:** A feasibility study or assessment report for evaluation of the cleanup technologies considered for remediation of soil matrix, soil vapor and groundwater and the need for interim remedial measures and pilot tests.  
  
The feasibility study must include a description of the selection criteria for choosing the proposed method over other potential remedial options. Discuss the technical merit, suitability of the selected method under the given Site conditions and waste constituents present, economic and technological feasibility, and immediate and/or future benefits to the people of the state.
    - 2. **Sampling and Analysis Plan:** A SAP to describe the sampling protocol for each media.
    - 3. **Proposed Cleanup Goals:** Proposed cleanup goals for chlorinated solvents and petroleum hydrocarbon concentrations in soil vapor, soil, and groundwater. Cleanup goals are numeric and narrative standards that are developed to bring the Site into compliance with State Water Board Resolution 92-49 and Resolution 68-16. The cleanup goals are factors based on background water quality and the HHRA.
    - 4. **Mass Removal Estimation:** Estimation of cumulative mass of wastes to be removed with the selected remedial method. Include all calculations and methodology used to obtain this estimate.
    - 5. **Pilot Projects:** Description of any pilot projects intended to be implemented.

6. **Investigation Derived Waste Disposal:** A detailed waste containment and soil management plan that includes measures that will be taken to contain and remove all investigation derived waste including soil and groundwater.
7. **Monitoring and Reporting Program:** Remediation system monitoring is required to determine the functionality of the remediation system, prevent unauthorized access, assess damage after weather events, and eliminate spills and failures.

The RAP must include a Monitoring and Reporting Program (MRP) to monitor the functionality and success of the remediation system on a quarterly basis. The RAP MRP will be approved and then issued by the Executive Officer.

- b. **RAP Permitting Requirements:** In-situ and ex-situ groundwater remediation projects that require the use of chemical amendments to meet cleanup goals are subject to enrollment under *General Waste Discharge Requirements for In-situ and Ex-situ Groundwater Remediation Projects*, General Board Order R6-2022-0020 (General Order). Amendments are defined as biological, chemical, and organic compounds that help to advance/mediate degradation of groundwater pollutants and may be applied to a defined treatment zone within the subsurface or utilized for treatment of polluted groundwater above ground. The “treatment zone” means a three-dimensional area being targeted to receive authorized amendments to achieve cleanup goals and protect beneficial uses.

The Dischargers must determine if the proposed in-situ or ex-situ groundwater remediation project is eligible for coverage under the General Order. Upon determination of permit eligibility, the Dischargers must submit the application for enrollment with the RAP in compliance with General Order, section II. A copy of the General Order and Resolution, including the initial study and negative declaration, may be accessed electronically on the Lahontan Water Board website ([Lahontan Region Adopted Orders By Number – 2022 | Lahontan Regional Water Quality Control Board \(ca.gov\)](#)).

- c. **RAP Implementation:** Upon approval of the RAP, the Dischargers must implement the RAP in accordance with the time schedule outlined in Attachment B.
- d. **RAP Progress Reports:** The Dischargers must submit quarterly remediation progress reports according to the time schedule outlined in Attachment B.

**ATTACHMENT B  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION  
TIME SCHEDULE  
FOR  
CLEANUP AND ABATEMENT ORDER R6T-2024-(TENTATIVE)**

<b>TASK</b>	<b>DUE DATE</b>
<b>1. Conceptual Site Model</b>  1. Submit initial Site Conceptual Model  2. Submit revised Site Conceptual Model	1. 180 days after Order adoption  2. Annual: February 15 <sup>1</sup>
<b>2. Human Health &amp; Ecological Risk Assessment</b>  1. Submit initial Human Health Risk Assessment  2. Submit revised Human Health Risk Assessment	1. 180 days after Order adoption  2. Annual: February 15 <sup>1</sup>
<b>3. Site Assessment Work Plan</b>  1. Submit a Site Assessment Work Plan  2. Implement the Site Assessment Work Plan  3. Submit a Site Assessment Completion Report	1. 60 days after Order adoption  2. 120 days after Order adoption  3. 180 days after Order adoption
<b>4. Public Participation Plan</b>  1. Submit a Baseline Community Assessment  2. Submit an Interested Persons Contact List  3. Submit a Draft Fact Sheet  4. Deliver the Approved Fact Sheet	1. 30 days after Order adoption  2. 30 days after Order adoption  3. 60 days after Order adoption  4. 75 days after Order adoption
<b>5. Mitigation and Remediation Plans</b>  1. Implement vapor intrusion mitigation measures to immediately reduce vapor concentrations in indoor air  2. Submit an Interim Remedial Action Plan (IRAP)	1. Continuous during operational hours.  2. 60 days after Order adoption

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<sup>1</sup> Annual reporting begins February 15, 2025

TASK	DUE DATE
3. Implement the IRAP 4. Submit a Final Remedial Action Plan(s) (RAP) 5. Implement the RAP 6. Submit Quarterly IRAP and RAP Progress Reports	3. 120 days after Order adoption 4. 180 days after Order adoption 5. 300 days after Order adoption 6. <u>Quarter – Due Date</u> 1 <sup>st</sup> Quarter – May 15 2 <sup>nd</sup> Quarter – August 15 3 <sup>rd</sup> Quarter – November 15 4 <sup>th</sup> Quarter – February 15

**ATTACHMENT C  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION  
MONITORING AND REPORTING PROGRAM  
FOR  
CLEANUP AND ABATEMENT ORDER R6T-2024-(TENTATIVE)**

This Monitoring and Reporting Program (MRP) is part of Cleanup and Abatement Order R6T-2024-(TENTATIVE) (CAO or Order). Failure to comply with this program constitutes noncompliance with the CAO and California Water Code, which can result in the imposition of civil monetary liability. All sampling and analyses shall be by U.S. EPA approved methods. The test methods chosen for detection of the constituents of concern shall be subject to review and concurrence by the Lahontan Water Board.

Laboratory analytical reports to be included in technical reports shall contain a complete list of chemical constituents, which are tested for and reported on by the testing laboratory. In addition, the reports shall include both the method detection limit and the practical quantification limit for the testing methods. All samples shall be analyzed allowable holding time. All quality assurance/quality control (QA/QC) samples must be run on the same dates when samples were actually analyzed. Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report. All analyses must be performed by a State Water Resources Control Board Division of Drinking Water accredited laboratory.

**I. VAPOR INTRUSION MITIGATION MONITORING**

- A. Duration:** Vapor intrusion mitigation measures must be implemented during business operational hours in each suite until the vapor concentrations under the building until monitoring data indicates the chemical vapors are reduced to levels that demonstrate the release no longer poses a risk to occupants of the building.
- B. Documentation:** The mitigation measures must be recorded daily in a permanent logbook for each suite and must include the date, hour and minute the measures are implemented, and include the number of children (minors) present in each suite.

**II. RISK ASSESSMENT AND COMPLIANCE MONITORING**

Air, soil vapor and groundwater must be sampled concurrently and on a quarterly basis to evaluate exposure risks and determine success of the remedial alternative and achievement of cleanup goals.

**A. AIR MONITORING REQUIREMENTS**

The Dischargers must comply with the following requirements and must collect all air samples concurrently with one another.

## 1. Building Survey and Screening

- a. **Structural Inspection:** Prior to sampling indoor air, a survey of the interior and exterior of the building must be conducted and the results recorded. The visual inspection must be conducted to determine how vapor intrusion into the building may be occurring and identify indoor sources of vapor forming chemicals.
- b. **Indoor Suite Inventory:** Prior to indoor air sampling, each room within each suite must be inventoried for commercial and industrial products and the results of the screening must be recorded.
- c. **Outdoor Sources:** Prior to outdoor air sampling, a survey must be conducted to identify the types of industries nearby and traffic patterns. The results of the survey must be recorded.

## 2. Indoor Air Monitoring

- a. **Locations:** Samples must be collected from within each suite of the building, within the breathing zone (approximately 3 to 5 feet off the ground for adults and at lower sampling heights if receptors include children), and away from windows and doors. The sampling locations must be recorded.
- b. **Duration:** Indoor air samples must be collected over the entire duration of business operations for each suite to produce representative concentrations of the vapor forming chemicals over the anticipated daily exposure period for building occupants to determine the actual exposure risks over the entire workday. The sampling duration must be recorded.
- c. **Sampling Conditions:** Sampling must be conducted over conservative conditions (e.g., windows and doors closed) and the mitigation measures turned off. The heating, ventilation and air conditioning systems must be operated normally for the season and time of day. The sampling conditions must be recorded.

## 3. Outdoor Air Monitoring

- a. **Locations:** Outdoor air samples must be collected behind and in front of the building near the doors and windows of each suite. The locations must be recorded.
- b. **Duration:** Outdoor air samples must be collected over the same time period concurrently with indoor air sampling. The sampling duration must be recorded.

**4. Ambient Air Monitoring**

- a. **Locations:** Ambient air samples must be collected away from automobiles, generators, chemical storage areas, and other sources of air pollutants. Samples must be collected at locations that are upwind of and are not influenced by subsurface contamination at a distance equal to twice the height of the building. Sampling devices must be located approximately 6 feet off the ground and 10 feet beyond a tree’s drip line. The sampling locations must be recorded.
- b. **Number of Samples:** Three ambient air samples, at minimum, must be collected with each indoor sampling event.

**5. Air Monitoring Parameters and Analytical Methods**

- a. **Monitoring Parameters:** Air samples must be analyzed for the constituents listed in the table below.

Monitoring Parameters	Analytical Method
Volatile Organic Compounds (full scan mode)	US EPA TO-15
Semi-Volatile Organic Compounds	US EPA TO-15
Gasoline Range Petroleum Hydrocarbons	US EPA TO-15
Diesel Range Petroleum Hydrocarbons	US EPA TO-15
Oxygen	ASTM 1946
Fixed Gases	ASTM 1946
Temperature	Field <sup>1</sup>

- b. **Analysis Requirements:** Air samples must be analyzed by the methods listed in the table above. The method detection limit for each analysis must be lower than the risk-based concentrations for each corresponding chemical of concern included in the constituent list. The reporting limit and method detection limit must be included in the laboratory analytical report.

**B. SOIL VAPOR MONITORING REQUIREMENTS**

Soil vapor monitoring must be conducted quarterly and concurrently with air and groundwater monitoring.

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<sup>1</sup> Field – Monitoring parameters to be collected in the field with portable measuring instruments.



## 1. Soil Vapor Monitoring

- a. **Locations:** Soil vapor samples must be collected below the building foundation of each suite and the locations must be recorded on the field logs.
- b. **Shut In Test:** Prior to purging and sampling each probe, shut in testing must be performed to check for leaks in the above-ground sampling train. The vacuum start and stop must be recorded on the field logs.
- c. **Purging:** Three well volumes must be purged from the vapor probes prior to sample collection to remove stagnant air from the sampling system. The purged volume, purge start and stop time, flow rate, and vacuum exerted on the formation must be recorded on the field logs.
- d. **Sampling:** Gas-tight sample containers must be used to prevent photodegradation of the vapor forming chemicals. The sample location, canister and regulator identification numbers must be recorded on the field logs.
- e. **Leak Test:** A leak test must be conducted at every soil vapor probe during each sampling event to evaluate whether ambient air is introduced into the sampling train. The leak check compound used during each sampling event must be recorded on the field logs.
- f. **Flow rates:** Flow rates during purging and sampling must not exceed 200 milliliters per minute (mL/min) and vacuums must be less than 100 inches of water.

## 2. Vapor Monitoring Parameters and Analytical Methods

- a. **Monitoring Parameters:** Indoor air, outdoor air, and soil vapor samples must be analyzed for the constituents listed in the table below.
- b. **Analysis Requirements:** The monitoring parameters must be analyzed according to the methods listed in the table below. The method detection limit for each analysis must be lower than the risk-based concentrations and the reporting limit and method detection limit must be included in the laboratory analytical report.

Monitoring Parameters	Analytical Method
Volatile Organic Compounds (full scan mode)	US EPA TO-15
Semi-Volatile Organic Compounds	US EPA TO-15
Total Petroleum Hydrocarbons as Gasoline	US EPA TO-15
Total Petroleum Hydrocarbons as Diesel	US EPA TO-15
Oxygen	ASTM 1946
Fixed Gases	ASTM 1946
Temperature	Field

**C. GROUNDWATER MONITORING REQUIREMENTS**

Quarterly groundwater monitoring is required to be conducted concurrently with air and soil vapor monitoring. The groundwater monitoring program monitors the quality of water that passes through the point of compliance, evaluates the upgradient water quality, and detects the migration of waste horizontally and vertically within the aquifer.

**1. Groundwater Monitoring**

- a. **Monitoring Locations:** Groundwater quality must be monitored at all monitoring points within the established groundwater monitoring network. The sampling points must be recorded on the field sampling logs.
- b. **Aquifer Characteristics:** Prior to purging and sampling, the groundwater surface elevation (feet below ground surface [ft bgs]) and static water level (feet above mean sea level [ft amsl]) must be measured and recorded on field sampling logs for all monitoring wells to determine the gradient, velocity, and direction of groundwater flow. The measurements must be accurate to the nearest 0.01 foot.
- c. **Purging:** Prior to sampling, all groundwater wells must be purged using low-flow techniques until parameters including dissolved oxygen (DO), electrical conductivity, pH, temperature, and turbidity of extracted well water have stabilized. The parameters will be considered stable when three consecutive readings have pH values within +/- 0.1 pH units, temperature values within +/- 2.0 degrees Celsius, and electrical conductivity values within +/- 3.0 percent. Purge rates must not exceed 500 mL/min. The stabilization readings and purge rates must be recorded on the field sampling logs.
- d. **Sampling:** The groundwater wells must be sampled using low-flow techniques to withdraw water at a rate at which water is naturally flowing through the screened interval to reduce the amount of water required for parameter stabilization. Samples must be collected from the middle of

screened interval at 100 mL/min or less to prevent off-gassing of volatile organic compounds and low-biased results. The sample collection times, and pump placement depth must be recorded on the field sampling logs.

## 2. Groundwater Monitoring Parameters and Analytical Methods

- a. **Monitoring Parameters:** The monitoring parameters include all the waste constituents and their reaction products that are reasonably expected to be in or derived from the waste discharges. The Dischargers must sample groundwater for all monitoring parameters listed in the table below.
  
- b. **Analytical Methods:** The monitoring parameters must be analyzed according to the methods listed in the table below. The method detection limit for each analysis must be lower than the lowest risk-based concentrations and the reporting limit and method detection limit must be included in the laboratory analytical report.

<b>Monitoring Parameters</b>	<b>Analytical Method</b>
Volatile Organic Compounds (Full Scan)	EPA 8260B
Semi-Volatile Organic Compounds	EPA 8270C
Total Petroleum Hydrocarbons as Gasoline	EPA 8015 Modified
Total Petroleum Hydrocarbons as Diesel	EPA 8015 Modified
Total Petroleum Hydrocarbons as Motor Oil	EPA 8015 Modified
Metals	EPA 6010B
Hexavalent Chromium	EPA 7199
Nitrate	EPA 300.0 or 300.1
Sulfate	EPA 300.0 or 300.1
Chloride	EPA 300.0 or 300.1
Alkalinity	EPA 310.2
Total Dissolved Solids	SM 2540C
Total Organic Carbon	SM 5310 B-D
Methane	SM 6211 B
Temperature	Field
pH	Field
Electrical Conductivity	Field
Dissolved Oxygen	Field
Dissolved Hydrogen	Field
Oxidation-Reduction Potential	Field
Chemical Oxygen Demand	Field
Turbidity	Field

### III. REPORTING REQUIREMENTS

Pursuant to CCR, title 23, section 3890, the Discharger must submit reports, including soil, soil-gas, and water data, prepared for the purpose of subsurface investigation or remediation of a discharge of waste to land electronically over the internet to the State Water Resources Control Board’s GeoTracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement. The Discharger must provide the monitoring report to the Lahontan Water Board, as specified in this MRP, and upload the full monitoring report, laboratory analytical data, sampling locations, groundwater well and soil vapor probe survey data, and a site map into GeoTracker, as stipulated by CCR, title 23.

**A. MONTHLY VAPOR INTRUSION MITIGATION REPORT**

1. **Reporting Requirement:** Submit a vapor intrusion mitigation report documenting mitigation measures being implemented in each suite including the engineered controls for the vapor intrusion response actions implemented and include a narrative description discussing the success of those measures.
2. **Due Date:** Reports are due monthly on the 15<sup>th</sup> of each month following the monitoring period.

**B. QUARTERLY MONITORING REPORTS**

Each quarterly report must include but not be limited to, the following information and be submitted according to the following schedule below.

MONITORING FREQUENCY	REPORTING PERIOD	REPORT DUE DATE
January - March	1 <sup>st</sup> Quarter	May 15 <sup>th</sup>
April – May	2 <sup>nd</sup> Quarter	July 15 <sup>th</sup>
June – September	3 <sup>rd</sup> Quarter	November 15 <sup>th</sup>
October – December	4 <sup>th</sup> Quarter	February 15 <sup>th</sup>

1. **Recorded Data:** All data recorded during the monitoring period for air, soil vapor and groundwater as required in MRP section II.
2. **Tabulated Sampling Data:** Tabulated results of sampling and laboratory analyses for each monitoring point, including historical (last ten years at minimum) and the current reporting period data. The tabulated data must be compared with the established cleanup goal for each monitoring parameter in air, soil vapor and groundwater. Exceedances of cleanup goals must be identified for each sample at each given monitoring point. The data must be arranged such that the date, the monitoring parameters, the concentrations, and cleanup goals are readily discernible.
3. **Field Logs:** Copies of all field monitoring and well sampling data sheets.
4. **Laboratory Reports:** Laboratory analytical reports to be included in technical reports must contain a complete list of chemical constituents, which are tested for and reported on by the testing laboratory. In addition, the reports must include both the method detection limit and the practical quantification limit/reporting limit for the testing methods and all QA/QC reports associated with the analytical method including canister certification and calibration reports. Each monitoring report must contain the following declaration:

*“All analyses were conducted by an ELAP-certified laboratory qualified to perform such analyses by and in accordance with current USEPA procedures or as specified in this Monitoring and Reporting Program.”*

- 5. Leak Detection Compounds:** Leak detection compounds must be analyzed and reported by the laboratory. The laboratory report must include both the method detection limit and the reporting limit.
- 6. Site Map:** A map and/or aerial photograph showing the property boundaries, the locations of indoor air, soil vapor and groundwater monitoring points, and the surface trace of the point of compliance.
- 7. Floor Diagram:** Floor diagram must be submitted illustrating the floor layout, chemical storage areas, doorways, windows, utility conduits, heating, ventilation, and air conditioning (HVAC) system, and any other pertinent information.
- 8. Building Survey:** Results of the building survey including the design with as-built plans of the building layout at time of construction and at present, utility conduits, use, age, size, dimensions, number of suites, foundation/slab condition, occupancy, and potential vapor entry points.
- 9. Aquifer Characteristics:** Describe, calculate, and illustrate on a map and/or aerial photograph the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the surface impoundments, the velocity of groundwater flow (feet/year), and the current groundwater isocontours for that monitoring period.
- 10. Narrative Data Analysis:** A narrative discussion of the data transmitting the essential points of each report, including an evaluation of the data collected during the monitoring period with respect to air, soil vapor and groundwater and a description of the data collection process.
- 11. Deviations from the Monitoring Program:** A written explanation of deviations from the risk assessment and compliance monitoring (e.g., wells and probes not sampled, mitigation measures not implemented, air sampling not conducted).
- 12. Waste Disposal Documentation:** The number of drums onsite, number of drums transported, location of drums stored onsite, waste disposal location, date of disposal, and waste characterization results compared to the waste acceptance facility criteria.
- 13. Violations:** A discussion of any violations found since the last report was submitted and describing actions taken or planned for correcting those violations.

- a. If the Discharger has previously submitted a detailed time schedule for correcting violations, a reference to the correspondence transmitting this schedule will suffice.
- b. If no violations have occurred since the last submittal, this must be stated in the letter of transmittal.

**14. Spill Reporting:** A summary of significant spills and/or leaks that occurred at the Site during the reporting period and must include: 1) the response taken by the Discharger; 2) date of incident; 3) copies of laboratory analytical reports from all samples collected; and 4) photographs taken of the incident.

**C. ANNUAL MONITORING REPORTS**

Each annual report must include, but not be limited to, the following information and be submitted according to the schedule below.

MONITORING FREQUENCY	REPORTING PERIOD	REPORT DUE DATE
January – December	Annual	February 15 <sup>th</sup>

1. **Data Compilation:** A data compilation summary of all monitoring information reported in the corresponding quarterly reports as required in MRP section III.B.
2. **Time Series Plots:** Time-series plots of the analytical results from sampling at each monitoring point for each chemical detected during the monitoring period as well as available historical data (last ten years of data). Each graph must be plotted using raw data, including the last ten (10) years of data at minimum, and at a scale appropriate to show trends or variations of impacts within the subsurface. For graphs showing trends of similar constituents (e.g., volatile organic compounds) the scale must be the same.
3. **Cross Sections:** Cross sections of each constituent of concern in the subsurface depicting the vertical extent of pollution in the subsurface.
4. **Isoconcentration Maps:** Submit isoconcentration maps, for each chemical detected during monitoring, to depict the aerial extent of the soil vapor and groundwater plumes.
5. **Calibration Reports:** Calibration methods and any discrepancies of any meters used for field parameter evaluations after calibration is performed.
6. **Spill Reporting:** A summary of significant spills and/or leaks that occurred at the Site during the reporting period and must include: 1) the response taken by the Discharger; 2) date of incident; 3) copies of laboratory analytical reports from all samples collected; and 4) photographs taken of the incident.

7. **Compliance Record:** The compliance record and the corrective actions taken or planned, which may be needed to bring the Site into full compliance with the CAO.