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## Lahontan Regional Water Quality Control Board

June 16, 2022

INTERESTED AGENCIES AND PARTIES:

**REQUEST FOR COMMENTS - CLEANUP AND ABATEMENT ORDER R6T-2022-(PROPOSED), REQUIRING DAVID AND KATHLEEN BARNETT, CAD ENTERPRISES LLC, CAMCO, B O T, 65 INC. AND LIGHTNIN II, INC. TO ASSESS, CLEAN UP AND ABATE WASTE DISCHARGED TO WATERS OF THE STATE PURSUANT TO CALIFORNIA WATER CODE SECTIONS 13267 AND 13304 AT 1961 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY**

The California Regional Water Quality Control Board, Lahontan Region (Water Board) intends to issue the enclosed proposed Cleanup and Abatement Order (proposed CAO) within the year. The proposed CAO names David and Kathleen Barnett, CAD Enterprises LLC, CAMCO, and Lightnin II as “Dischargers” and orders cleanup of discharges of solvent wastes from the former Big O Tires (Site). The discharges have resulted in violations of prohibitions contained in the Water Board’s Water Quality Control Plan.

The Water Board is requesting your review and comments upon the proposed CAO (enclosed). The proposed CAO can also be viewed at the Water Board's webpage at <http://www.waterboards.ca.gov/lahontan>.

All comments regarding the proposed CAO must be received by the Water Board by **July 18, 2022, at 5:00 p.m.** Please send your comments to:

Katrina Fleshman, Executive Assistant  
Lahontan Regional Water Quality Control Board  
2501 Lake Tahoe Blvd.  
South Lake Tahoe, CA 96150

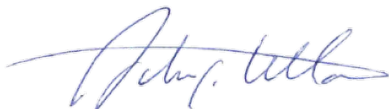
Alternatively, you may electronically submit comments (**Subject Line: Big O Tires proposed CAO Comments – [name of commenter]**) to:  
[lahontan@waterboards.ca.gov](mailto:lahontan@waterboards.ca.gov)

The proposed CAO is being issued to assess, cleanup and abate discharges originating from the Site. The proposed CAO requires the Dischargers to (1) Develop and Submit a Conceptual Site Model, (2) Prepare and Submit a Sampling and Analysis Plan, (3) Develop, Submit, and Implement a Site Assessment Work Plan(s) to Assess, Characterize and Delineate the Extent of Wastes in Soil, Soil Vapor, and Groundwater, (4) Prepare and Submit a Human Health and Ecological Risk Assessment, (5) Conduct Remedial Actions, (6) Public Participation, and (7) Conduct Groundwater Monitoring.

PETER C. PUMPHREY, CHAIR | MICHAEL R. PLAZIAK, PG, EXECUTIVE OFFICER

These actions are needed to protect human health and the environment, and existing and potential beneficial uses, including the restoration of the drinking water aquifer for human consumption.

If you have questions or comments regarding this matter, please contact Brian Grey at (530) 542-5421.

A handwritten signature in blue ink, appearing to read "Ben Letton".

BEN LETTON  
ASSISTANT EXECUTIVE OFFICER

Enclosure: Cleanup and Abatement Order No. R6T-2022-(PROPOSED)

**STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION  
CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)  
REQUIRING**

**DAVID AND KATHLEEN BARNETT  
CAD ENTERPRISES LLC  
CAMCO  
B O T, 65 INC.  
LIGHTNIN II, INC.**

**TO ASSESS, CLEANUP, AND ABATE  
WASTE DISCHARGED TO WATERS OF THE STATE PURSUANT TO CALIFORNIA  
WATER CODE SECTIONS 13267 AND 13304**

**BIG O TIRES  
APN 023-523-008-000  
1961 LAKE TAHOE BOULEVARD  
SOUTH LAKE TAHOE, CA  
SITE CLEANUP PROGRAM NO. T6S034  
GEOTRACKER GLOBAL ID NO. SL0601729739**

This Cleanup and Abatement Order No. R6T-2022-(PROPOSED) (Order) is issued to David and Kathleen Barnett, CAD Enterprises, Inc., CAMCO, B O T, 65 Inc., and Lightnin II, Inc., based on provisions of Water Code sections 13267 and 13304, which authorize the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) to issue this Cleanup and Abatement Order and require the submittal of technical and monitoring reports.

The Lahontan Water Board finds that:

**OVERVIEW**

- 1. Discharger(s):** David and Kathleen Barnett, CAD Enterprises, Inc., CAMCO, B O T, 65 Inc., and Lightnin II, Inc. are identified as “Dischargers.” 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 high concentrations of contamination in groundwater and soil vapor (also referred to herein as soil gas) and the threat of vapor intrusion caused by these contaminants constitutes a public nuisance per se because the pollution occurred as a result of discharges of wastes in violation of the Water Code.
- 2. Location:** The Site is located at Assessor’s Parcel Number (APN) APN 023- 523- 008- 000 at 1961 Lake Tahoe Boulevard, South Lake Tahoe, California (Site). Figure 1, *Site Vicinity Map*, attached hereto and incorporated herein by

reference, depicts the general location of the Site. Additionally, Figure 2, *Site Plan*, attached hereto and incorporated herein, depicts the buildings currently occupying the Site, Site features, and previous sampling locations. Land use setting in the vicinity of the Site is commercial. Residential areas are located downgradient approximately 1,200 feet to the north from the Site near the intersection of James Avenue and 5<sup>th</sup> Street. The Site is located adjacent to Tucker Basin and across Lake Tahoe Boulevard from the former Lake Tahoe Laundry Works site (Figure 3, *Lake Tahoe Laundry Works Site Plan and Vicinity*), which is located at the head of the regional tetrachloroethylene (PCE) plume that extends from Lake Tahoe Boulevard to the Tahoe Keys. Tucker Basin receives stormwater runoff from the Site and the Lake Tahoe Laundry Works site. The area of the Lake Tahoe Basin adjacent to and downgradient from the Site relies on groundwater as its primary source of drinking water.

- 3. Site Description and Activities:** Between 1975 and 2006, Big O Tire franchise stores were operated by various lessees. Franchise operations included tires sales, automotive repair, maintenance, and servicing. David and Kathleen Barnett owned the Site in fee title from 1975 to 2002. In 2002, Site ownership was transferred to CAD Enterprises, LLC, which continues to own the Site property. Former lessees at the Site include CAMCO from 1985 to 1991; BOT 65, Inc. from 1991 to 1994; and Lightnin II, Inc. from 1995 to at least 2006. The Site is currently occupied by South Y Fireplaces & Wood Stoves.
- 4. Site History and Ownership:** The historical Site ownership and operations are summarized in Table 1 below.

**Table 1 – Site Ownership and Operations History  
APN 023-523-008-000 – 1961 Lake Tahoe Boulevard**

APPROXIMATE PERIOD	NAME	TYPE
1975-2002	David and Kathleen Barnett	Property Owner
2002-present	CAD Enterprises, LLC	Property Owner
1985-1991	CAMCO	Operator
1991-1994	B O T 65, Inc	Operator
1995-2006	Lightnin II, Inc.	Operator

- 5. Chemical Usage:** Automotive repair, maintenance and servicing activities were performed at the Site including the storage and use of new and used motor oil, lubricating oils, brake cleaners, and degreasers. Operational areas included floor drains, above ground storage tanks (ASTs), hydraulic lifts, parts cleaning sinks, drums, and a chemical storage cabinet. Hazardous waste permits and other permits issued by local and state agencies, regulatory correspondences, material safety data sheets, waste disposal receipts, chemical use and storage questionnaires and other documents available in the case file indicate the use of Safety-Kleen service and product to clean parts used in tire mounting and light mechanical repair from 1985 to

2006, in addition to the use of Evergreen Environmental Service and others for waste oil disposal from 1994 to 2006. Material safety data sheets provided by Mark Strong, former lessee between 1985 and 1994, also indicate the use of Safety-Kleen 105 Solvent and the aerosol spray Brakleen®. No information has been provided to confirm chemical usage between 1975 and 1985.

The HAZNET database includes records associated with the Site for #CAD093459485 for the waste category of “unspecified solvent mixture.”

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

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

6. **Investigations:** Based upon environmental site investigations, petroleum and chlorinated hydrocarbons are present in shallow soil, elevated petroleum and chlorinated hydrocarbon soil gas masses remain in multiple probable release locations as evidenced during recent soil gas sampling, and chlorinated hydrocarbons remain at depths from the water table to middle zone groundwater. These data support the conclusion that discharges occurred at the Site and provides additional indication of the Site as a source of petroleum and chlorinated hydrocarbons in the subsurface. The following investigation activities have been completed at the Site and by others in the near vicinity:
  7. In October 2001, Harding ESE conducted a preliminary investigation consisting of the advancement of three (3) borings adjacent to the existing building to depths ranging from 47.5 to 51.5 feet below ground surface (bgs), and the collection of discrete soil and groundwater samples at 15 or 20 and 47.5 or 50 feet bgs (Figure 4, *Site Plan*). Investigation results indicated PCE concentrations above the California Maximum Contaminant Level (MCL) of 5 micrograms per liter ( $\mu\text{g/L}$ ) in all groundwater samples collected. The investigation results did not determine the extent of contamination but suggested potential discharges and remaining contamination from operations at the Site.
  8. In July 2006, LFR, Inc. collected soil and groundwater samples from eleven (11) boring locations from within and adjacent to the existing building (Figure 5, *Soil and Groundwater Sampling Locations*). Twenty-three (23) soil samples were collected at depths ranging from 3 to 14 feet bgs. Groundwater samples were collected from all eleven (11) boring locations between depths of approximately 5 and 10 feet bgs; one groundwater sample was collected between the depths of 11 and 14 feet bgs. No groundwater samples deeper than 14 feet bgs were collected. PCE was detected in shallow soil at a concentration of 42 micrograms per kilogram ( $\mu\text{g/kg}$ ), which exceeds the threshold for leaching to groundwater (San Francisco Bay Regional Water Quality Control Board’s Leaching to Groundwater Environmental Screening Level [ESL]); seasonally groundwater can be as shallow as 2 feet bgs at the Site and Site area. A PCE concentration of 5.8  $\mu\text{g/L}$  was also reported in the

groundwater sample collected from between 11 and 14 feet bgs. Although PCE was not reported in the majority of the samples collected, there are significant concerns about the selection of sampling locations relative to potential source areas. Even so, the investigation results confirmed that unauthorized discharges of petroleum and chlorinated hydrocarbons occurred at the Site but did not determine the extent of soil, soil gas, and groundwater contamination or sufficiently evaluate potential threats to human health at each specific release location.

9. In January 2018, environmental consultants working on behalf of Lake Tahoe Laundry Works responsible parties, collected discrete depth groundwater samples from five separate depth intervals at borings located within Lake Tahoe Boulevard, including two boring locations near the Site's and Tuckers Basin's southwest property corners (Figure 6, *EKI and PES Multi-Depth Grab Groundwater Sample Locations and PCE Results*). Maximum PCE concentrations of 6.38 µg/L and 28.6 µg/L were reported. The discrete depth groundwater sampling results indicate PCE contamination in groundwater is migrating onto the Site from the Lake Tahoe Laundry Works site.
10. In October 2018, Lake Tahoe Laundry Works' environmental consultants collected discrete depth groundwater samples from five separate depth intervals in borings located within Tucker Avenue, including at three locations near the Site's and Tuckers Basin's northern property boundary (Figure 6, *EKI and PES Multi-Depth Grab Groundwater Sample Locations and PCE Results*). PCE concentrations above the MCL were reported to depths of up to 46 feet bgs at each boring location. Maximum PCE concentrations ranged from 290 to 1,680 µg/L in the three borings closest to the property boundaries (LTLW-GW-9 through GW-11). The discrete depth groundwater sampling results indicate that PCE contamination in groundwater is migrating from the Site and Tucker Basin. Comparison of the January 2018 (see Finding 9) and October 2018 discrete depth sampling results indicate that PCE concentrations increased across the Site within similar depth intervals and contaminant sources likely remain at the Site and Tucker Basin.
11. In November 2018, Lake Tahoe Laundry Works' environmental consultants collected initial groundwater elevation measurements and groundwater samples from three newly installed "shallow" and "middle" zone monitoring well pairs, including monitoring well pair OS-2S/M located near the midpoint of Tucker Basin's northern property boundary (Figure 3, *Lake Tahoe Laundry Works Site Plan and Vicinity*). PCE concentrations in OS-2S have ranged between <0.5 to 51 µg/L since installation and have shown a decreasing trend. PCE concentrations in OS-2M have ranged between 220 and 1,580 µg/L since installation and have shown a decreasing trend. The groundwater monitoring results indicate contamination is migrating from Tucker Basin, and contaminant sources remain at the Site and/or Tucker Basin.
12. The groundwater elevation measurements collected from monitoring well pairs OS-2S/M through OS-4S/M by Lake Tahoe Laundry Works' environmental consultants provide estimates of the lateral and vertical groundwater hydraulic gradients in the

Site vicinity (i.e., the horizontal and vertical directions of likely contaminant transport). The groundwater elevation measurements show (1) “shallow” and “middle” zone groundwater flow primarily to the north and northeast across the Site, and (2) downward vertical gradients (i.e., downward contaminant migration).

13. Between October and December 2018, Lake Tahoe Laundry Works’ environmental consultants conducted preferential pathway investigation activities at the Lake Tahoe Laundry Works site, which included collection of soil and passive soil gas samples within and outside of backfill materials and identification of stormwater conveyance features (Figure 7, *PCE in On-Site and Off-Site Passive Soil Gas Samples*). Investigation results (1) provided further confirmation of unauthorized discharges at the Lake Tahoe Laundry Works site, (2) indicated likely contaminant transport via the stormwater conveyance system due to the distribution of PCE in soil gas reported (i.e., the highest PCE masses in soil gas were reported around stormwater conveyance drop inlet locations in the PCE delivery area), and (3) illustrated stormwater conveyance from the Site and Lake Tahoe Laundry Works site to the Tucker Basin.
14. In January 2019, Lake Tahoe Laundry Works’ environmental consultants conducted passive soil gas sampling at 10 locations within Tucker Basin (Figure 7, *PCE in On-Site and Off-Site Passive Soil Gas Samples*). Investigation results are consistent with Tucker Basin receiving PCE-contaminated stormwater, as evidenced by the distribution of PCE masses in soil gas sample results reported (i.e., the highest PCE masses were reported adjacent to the discharge point into Tucker Basin and decreased with distance).
15. In September and October 2020, Welsh Hagen and Associates (WHA) performed an initial passive soil gas investigation at the Site, which also included a geophysical survey, an elevation survey of the existing stormwater conveyance pipelines, and excavation of an 8-inch stormwater conveyance drop inlet at the Site (Figure 2, *Site Plan*; Figure 8, *Passive Soil Gas Survey Tetrachloroethene*; Figure 9, *Passive Soil Survey Benzene*; and Figure 10, *Passive Soil Survey Trichloroethene*). The investigation results confirmed the Site’s stormwater conveyance system directed stormwater to Tucker Basin and indicated areas with elevated petroleum (e.g., northern and southern parking lots and stormwater conveyance inlet) and chlorinated hydrocarbon (e.g., lift in the northwest building corner, lube pit and floor drain area, and the stormwater conveyance inlet) masses where further investigation is required.
16. The Site investigations conducted to date have identified areas where discharges have occurred. The assessment of the nature and extent (i.e., lateral and vertical extent) of petroleum and chlorinated hydrocarbon contamination in each discharge area, including assessment of contaminant transport via the stormwater conveyance system, was never completed during the investigations conducted at the Site and these activities are therefore incomplete.
17. Additional investigation activities are necessary to determine the nature and extent of chlorinated hydrocarbon concentrations, including for PCE and TCE, in soil gas, soil,

and groundwater at the Site to evaluate the potential risk to human health from direct contact and vapor intrusion exposure pathways. Cleanup and abatement of chlorinated hydrocarbons in soil gas, soil, and groundwater is necessary to 1) protect building occupants from vapor intrusion and 2) protect the municipal supply (MUN) beneficial use of groundwater.

18. Additional investigation activities are necessary to determine the extent of petroleum hydrocarbons in soil gas and groundwater at the Site to fully evaluate (1) threat to groundwater, and (2) risk of vapor intrusion to indoor air.
19. Current soil gas investigation results indicate residual petroleum and chlorinated hydrocarbon contamination remains in place near the lift in the northwest building corner, lube pit and floor drain area, and the stormwater conveyance inlet. These results (1) indicate unauthorized releases of waste to the environment have occurred, (2) chlorinated hydrocarbons, including PCE and TCE, remain in place around the primary release locations, (3) additional evaluation is needed to assess the extent of threats to human health and the environment, and determine the extent of remediation necessary to address discharges and threatened discharges.
20. The Lahontan Water Board has reviewed and evaluated the technical reports and records pertaining to the discharge, detection, and distribution of wastes at the Site and the Site vicinity. The Site assessments indicate that the soil, soil vapor and/or groundwater are or were previously impacted with wastes exceeding screening levels and potential threats to human health and the environment remain:
  - a. No current soil data are available to evaluate whether the Site remains a source of chlorinated hydrocarbons discharging to groundwater. The maximum concentration of PCE in the soil matrix reported in 2006 was 0.042 mg/kg. The 2020 WHA passive soil gas investigation identified areas with elevated petroleum and chlorinated hydrocarbon masses and the magnitude and extent of soil contamination in these areas remain undefined.
  - b. No active soil gas data are available to compare to environmental screening levels. Passive soil gas sampling was conducted in 2020 and indicated the presence of elevated petroleum and chlorinated hydrocarbon masses, including TCE, at various areas within and outside of the existing building and at the stormwater conveyance system inlet location.
  - c. No current on-Site groundwater data are available. The 2001 groundwater investigation indicated PCE concentrations up to 4,700 µg/L at the Site. The maximum concentration of PCE in the groundwater recently reported in the inferred down-gradient direction from the Site in borings and monitoring wells is 1,680 µg/L and 450 µg/L (2018, boring LTLW-GW-11-46 and 2021, monitoring well pair OS-2M), respectively. The concentrations of PCE in the groundwater greatly exceed the MCL and the San Francisco Bay Regional Water Quality Control Board's Aquatic Habitat Environmental Screening Level (ESL) of 120 µg/L.



- d. The depth to groundwater has ranged from approximately 4 to 11 ft bgs in monitoring well OS-2S since installation in 2018. Because the depth to groundwater is shallow, the presence of the PCE in groundwater beneath the Site threatens to cause vapor intrusion into buildings. There is no separation between the presence of the PCE in groundwater at the Site and the regional PCE plume.
- e. Areas with elevated contaminant masses in soil gas have been identified and the nature and extent of contamination in these areas remain undefined. The threat to the MUN beneficial use of groundwater from these areas must be evaluated and remedial options implemented where contaminant concentrations exceed the leaching to groundwater ESL, or, are otherwise present in shallow soils where they may directly contact and dissolve into groundwater during seasonal high water table conditions. Similarly, remediation activities must address the extent of migration of contaminated groundwater from the Site.
- f. The presence of PCE and petroleum hydrocarbons in soil gas at the stormwater conveyance system inlet, standard stormwater management practices at the time of discharge, and Site history indicate stormwater runoff contaminated with chlorinated hydrocarbons (e.g., PCE) and/or petroleum hydrocarbons from the Site transported via surface flow, as directed by the Site's grading to the former stormwater conveyance system's drop inlet and then discharged to Tucker Basin (Figure 11, Preferential Pathway Inventory). Tucker Basin is a stormwater infiltration basin designed to maximize the percolation of stormwater into the subsurface.
- g. Investigation activities conducted to date by the Discharger's consultants and others have not evaluated potential threats or impacts to surface water beneficial uses, including minor surface waters and minor wetlands, and ecological receptors. Chlorinated hydrocarbon concentrations in groundwater have been reported above environmental screening levels for protection of aquatic habitats.

**21. Source Elimination and Remediation Status:** No source removal or cleanup activities have been completed at the Site:

**22. Regulatory Status:**

- a. On July 20, 2001, the Lahontan Water Board issued a directive, pursuant to Water Code section 13267, requiring David and Kathleen Barnett and Harry Krupp (Lightnin II, Inc.) to perform a groundwater investigation at the Site, in an attempt to locate the property or properties responsible for the PCE pollution in municipal supply wells. The 2001 Harding ESE groundwater investigation identified PCE concentrations above the MCL but did not define the extent of contamination at the Site or address contribution to the municipal supply well contamination.
- b. On August 4, 2003, the Lahontan Water Board issued Cleanup and Abatement Order No. RB6S-2003-031, requiring David and Kathleen Barnett, CAMCO, and

Lightnin II, Inc. to cleanup and abate the pollution and threatened pollution identified at the Site following the 2001 groundwater investigation. The Dischargers have not defined the nature and extent of contamination or conducted remedial actions. Any groundwater contamination that has not been remediated will continue to migrate, unabated, under the influence of natural and induced (water supply well pumping) horizontal and vertical groundwater hydraulic gradients into municipal and domestic water supplies.

- c. On October 4, 2006, the Lahontan Water Board, issued an order, pursuant to Water Code section 13267, requiring CAD Enterprises, CAMCO, B O T 65, Inc., and Lightnin II, Inc. to submit additional information to address omissions and to support conclusions in the Results of Soil and Groundwater Investigations at the Big O Tires Store report dated August 9, 2006. The additional information provided to date is not sufficient to evaluate potential threat to human health at the Site or the extent of cleanup actions required.
- d. On July 24, 2007, the Lahontan Water Board issued the Denial of No Further Action Request letter in response to CAD Enterprises request to reconsider No Further Action Required status for the Site.
- e. On October 7, 2015, the Lahontan Water Board provided the Consideration of No Further Action Required letter to interested parties for public comment. Following receipt of public comments, Lahontan Water Board did not proceed with case closure.
- f. On May 10, 2019, the Lahontan Water Board issued an order, pursuant to Water Code section 13267, requiring David and Kathleen Barnett, CAD Enterprises LLC, Lightnin II, Inc., CAMCO, and B O T 65, Inc. to submit a technical report and complete a site history and chemical usage questionnaire. The intent of this order was to address data gaps from prior investigations and to assess the Site's potential contribution to the regional PCE plume. The Dischargers have performed the "first phase" of an investigation and collected some soil gas data which identified "hot spots" indicative of petroleum and chlorinated hydrocarbon releases at the Site but have not complied with the entirety of the order requirements.
- g. On August 27, 2019, January 8, 2020, and April 15, 2021, the Lahontan Water Board issued Notices of Violation for failure to submit a technical report. On April 29, 2021, the matter was referred to the State Water Board Office of Enforcement.
- h. On August 13, 2021, the Lahontan Water Board issued Notice of Violation for failure to submit a technical report.
- i. On September 8, 2021, Lahontan Water Board and State Water Resources Control Board (State Water Board) Office of Enforcement staff met via teleconference with CAD Enterprises LLC's legal counsel, and environmental

consultants, to discuss outstanding requirements of the May 2019 order. The technical report submittal remains outstanding.

23. **Impairment of Drinking Water Wells:** The Lahontan Water Board has the authority to require the Dischargers who have contributed to the regional PCE plume to pay for or provide uninterrupted replacement water service to each affected public water supplier, or private well owner, in accordance with Water Code section 13304. Figure 12, *Dissolved PCE in Groundwater Plume Map* shows 1) the extent of the regional PCE plume relative to affected municipal supply wells and 2) the Site location near the head/origin of the regional PCE plume. The location of the Site within the regional PCE plume, and the soil gas, soil, and groundwater data confirming that the unauthorized discharge of PCE waste has occurred at the Site, supports the critical need for additional investigation activities at the Site. This Order also requires cleanup to address the extent of PCE waste discharged/discharging from the Site.
24. **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, and e-mail communication with Dischargers, their attorneys, and/or environmental consultants, and Site visits. Relevant reports and data are available in the GeoTracker database at [GeoTracker \(ca.gov\)](https://www.geo-tracker.ca.gov).

#### AUTHORITY – LEGAL REQUIREMENTS

25. 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, shall 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, shall 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 shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.”*

26. 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. . . ”*

27. 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 . . . shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall 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 shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.”*

28. This Order requires investigation and submittal of work plans and reports (collectively referred to as reports) as well as ongoing monitoring and other tasks required pursuant to WC section 13267. The burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. Specifically, the reports are needed in order to adequately delineate the extent and amount of waste discharged, assess the threat of continuing discharge and to facilitate compliance with implementing cleanup and abatement activities required by this Order, with the ultimate goal of restoring water quality and protecting beneficial uses, including the drinking water supplies of the entire community of South Lake Tahoe. The record contains extensive evidence of the benefits to be obtained, including protecting an entire community from PCE, which is classified by the EPA as a likely carcinogen to humans. Public health threats are not only in the form of impacts to drinking water supplies (which may be treated at the wellhead), but also include the potential for PCE vapors to volatilize up from the water table, potentially impacting the indoor air of residences and businesses overlying the plume. PCE vapors are not typically noticed (unlike a gas leak, for example), meaning that a person may inhale vapors for years without having any indication. The benefits to be obtained from the requirements for investigation include ensuring the protection of human health of local residents whose businesses and homes overlie the plume.

29. Additional benefits to be obtained include protection of the community's drinking water, both immediately and from threatened impacts that could occur in the future. Municipal supply wells spanning three water districts have been impaired (PCE concentration detected above the MCL), impacted (PCE concentration detected below the MCL), or threatened (PCE has not been detected above the reporting limit but may be come impacted or impaired in the future due to regional PCE plume migration) by the regional PCE plume. The three affected water districts include the South Tahoe

Public Utility District, Lukins Brothers Water Company and Tahoe Keys Water Company. These three water districts serve approximately 40,000 residents and hundreds of commercial properties. These three water districts provide 97 percent of the South Lake Tahoe's community water supply. With the increased threat and severity of catastrophic wildfires in California, the ability of the community to rely upon these water resources is even more critical.

30. Based upon Lahontan Water Board staff experience with similar investigations, the approximate cost of these reports is in the range of \$75,000 to \$750,000. 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 No. 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.
31. 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 (Resolution 92-49). This Policy 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 68-16). Resolution 92-49 and the *Water Quality Control Plan for the Lahontan Region* (herein after "Basin Plan") establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background concentrations, 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.
32. The Lahontan Water Board's Basin Plan, which was initially adopted on March 31, 1995, and amended from time-to-time, identifies beneficial uses and establishes water quality objectives to protect beneficial uses. The Site lies within Tahoe South Subbasin of the Tahoe Valley Groundwater Basin (TVS Basin) of the Lake Tahoe Hydrologic Unit. As set forth in the Basin Plan, the designated beneficial uses for groundwater in the Lake Tahoe Hydrologic Unit include MUN, agricultural supply (AGR), and industrial service supply (IND). Water quality objectives to protect the beneficial use of MUN that apply to the groundwater at the Site include the "Chemical Constituents and Radioactivity," which incorporates by reference state maximum contaminant levels set forth in Title 22 of the California Code of Regulations. The MCLs for PCE and TCE is 5 µg/L, and cis-1,2 DCE is 6 µg/L. As discussed in the Findings of this Order, the concentrations of PCE, TCE, and cis-1,2 DCE in groundwater at and downgradient of the Site exceed the water quality objectives applicable to the wastes.

33. Regionwide Prohibitions in Section 4.1 of the Basin Plan include:

- a. The discharge of waste that causes violation of any narrative or numeric water quality objective contained in this Plan is prohibited.
- b. Where any numeric or narrative water quality objective contained in this Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.
- c. The discharge of waste that could affect the quality of waters of the state that is not authorized by the State or Regional Water Board is prohibited.

34. Unit/Area Prohibitions for the Lake Tahoe Hydrologic Unit in Section 5.2 of the Basin Plan include a prohibition of the discharge attributable to human activities of any waste or deleterious material to surface waters (e.g., the stormwater conveyance system and Tucker Basin) of the Lake Tahoe Hydrologic Unit.

35. The designated beneficial uses of minor surface waters and minor wetlands for the South Tahoe Hydrologic Unit are MUN, AGR, GWR, REC1, REC2, COMM, COLD, WILD, and SPWN. Water quality objectives to protect these beneficial uses include narrative and numerical water quality objectives in the Basin Plan. As set forth in Finding 20, the discharges of waste at the site exceed the water quality objectives applicable to the wastes.

36. 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.

37. The threat of vapor intrusion into buildings at and near the Site has caused or threatens to cause nuisance as defined in Water Code section 13050, subdivision (m). In particular, the threat of vapor intrusion is potentially "injurious to health, indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property and affects at the same time an entire community and occurs during or as a result of the treatment or disposal of waste."

38. 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.

39. This Order requires investigation and cleanup of the site in compliance with the Water Code, the applicable 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

40. PCE and other waste constituents discharged at the site constitute “waste” as defined in Water Code section 13050, subdivision (d).
41. The relevant facts and the evidence indicate that the following Dischargers caused or permitted waste to be discharged into waters of the state and are therefore appropriately identified in this Order:

### **CAD Enterprises LLC**

42. CAD Enterprises LLC is a discharger because, as the current owner of the property, 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>1</sup> As the current owner of the property, CAD Enterprises LLC has the legal ability to control the discharge.

### **David and Kathleen Barnett**

43. David and Kathleen Barnett are dischargers because they were the former property owners during a timeframe when discharges occurred, and knew or should have known that activities on the Site created a reasonable possibility of discharge into waters of the state of wastes that could create or threaten to create a condition of pollution or nuisance, and had ability to control those discharges.

### **CAMCO**

44. CAMCO is a discharger because, as an operator of a former Big O Tire franchise store using petroleum products and chlorinated solvents (including PCE) at the Site, the 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.

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<sup>1</sup> *Tesoro Refining & Marketing Company LLC v. Los Angeles 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 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).

**B O T 65, Inc.**

45. B O T 65, Inc. is a discharger because, as an operator of a former Big O Tire franchise store using petroleum products and chlorinated solvents (including PCE) at the Site, the 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.

**Lightnin II, Inc.**

46. Lightnin II, Inc. is a discharger because, as an operator of a former Big O Tire franchise store using petroleum products and chlorinated solvents (including PCE) at the Site, the 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.

47. Decades of Lahontan Water Board staff experience with industries that use, store, and transfer chemicals such as petroleum products and chlorinated solvents (e.g., total petroleum hydrocarbons, VOCs, etc.), provide evidence that small amounts of spilled chemicals discharge during routine operations, seep through concrete and other intended containment, leading to the type of contamination found at the Site. The water boards are currently overseeing numerous cleanup operations resulting from improper and inadequate handling of hazardous materials. Standard chemical handling practices often unknowingly allow adverse environmental impacts, like the ones observed at the Site, to occur. These factors, taken as a whole, lead to the conclusion that the Dischargers have discharged chemicals of concern which must be cleaned up and abated to protect the environment and human health<sup>2</sup>. Lahontan Water Board files contain extensive evidence of publicly available information concerning the knowledge of the use of chlorinated solvents (including PCE) resulting in discharges and contamination of water supplies during the relevant timeframe.

48. Due to the activities described in this Order, the Dischargers have caused or permitted wastes, including PCE, 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.

49. The Dischargers have caused or permitted chlorinated solvents (including PCE) to be discharged or deposited where the wastes are or probably will pose a potential human health threat to occupants of the Site through direct contact exposure to contaminated soil, soil vapor and/or groundwater, or through vapor intrusion into indoor air or through other exposure pathways.

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<sup>2</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.)



50. 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 available. The Lahontan Water Board is issuing this Order to avoid further delay of Site investigation and remediation, which only becomes more costly with the passage of time.
51. The May 10, 2019 investigative order required Dischargers to submit technical and monitoring reports. All aspects of the May 2019 order remain in full force and effect. The obligations contained in this Order do not supersede or replace the requirements contained in the May 2019 order, although the Lahontan Water Board will accept consolidated reports that address the requirements of this Order and the May 2019 order. The May 2019 order remains in effect for enforcement purposes; the Lahontan Water Board and/or the State Water Board may take enforcement actions (including, but not limited to, issuing administrative civil liability complaints) against Dischargers who have not complied with directives contained in previously issued orders.

#### **OTHER CONSIDERATIONS**

52. 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 Discharger(s) 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' proposed 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 Executive Officer's approval of the applicable plan.
53. Pursuant to Water Code section 13304, the Lahontan Water Board may seek reimbursement for all reasonable costs to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.
54. 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.

55. 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. Filing a petition does not stay 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 ACTIONS

**THEREFORE, IT IS HEREBY ORDERED**, pursuant to Water Code sections 13304 and 13267 that the Discharger(s) shall investigate, cleanup the waste and abate the effects of waste forthwith discharging at and from **1961 Lake Tahoe Boulevard**. “Forthwith” means as soon as reasonably possible, but in any event no later than the compliance dates established in Attachment A. More specifically, the Dischargers shall:

#### 1. **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 in soil, soil vapor, and groundwater, distribution of wastes, exposure pathways, sensitive receptors and other relevant information. The CSM shall be based upon the actual data already collected from the Site and shall identify data gaps (i.e., areas where further investigation is necessary).

- a. Provide a written presentation with graphic illustrations of nature and extent of constituents of concern (COCs) in soil, soil vapor, and groundwater originating from the Site and potential and known impacts of contamination to human and ecological receptors.
- b. Include a description of discharge scenario(s), Site geology and hydrogeology, on-Site and off-Site preferential pathways (e.g., stormwater conveyance system, sanitary sewer, other subsurface utilities), distribution of wastes in soil, soil vapor, and groundwater, exposure pathways, sensitive receptors (i.e., schools, day cares, nursing homes, etc.) and water supply wells.
- c. Identify data gaps to be addressed in the Site Investigation Work Plan(s).
- d. The CSM and routine CSM updates (as new data becomes available) acceptable to the Executive Officer shall be submitted in conformance with the requirements detailed in Attachment A, Time Schedule.

## **2. Prepare and Submit a Sampling and Analysis Plan and Quality Assurance Project Plan**

- a. Prepare and submit a comprehensive Sampling and Analysis Plan (SAP), documenting the procedural and analytical requirements for sampling soil, soil vapor, surface water (if applicable), subsurface utility backfill (e.g., stormwater and sanitary sewer conveyance system backfill) and groundwater. The SAP will be utilized for all phases of investigation, monitoring, and remediation system performance monitoring.
- b. Prepare and submit a comprehensive Quality Assurance Project Plan (QAPP) describing the quality assurance procedures, quality control activities, and technical activities that will be implemented to ensure data quality objectives are met.
- c. Update the SAP and QAPP as necessary to accommodate applicable regulatory changes, sampling method changes, analytical test method changes, and scope of work changes.
- d. A SAP and QAPP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements detailed in Attachment A, Time Schedule.

## **3. Develop, Submit, and Implement Site Investigation Work Plan(s)**

The Site Investigation Work Plan(s) (SIWP) shall propose investigation activities to update on-Site and off-Site information with the data required to define the full lateral and vertical extent of the discharge and extent of the discharge and evaluate potential threats to human health and ecological receptors. The data required will be used to support development of the Human Health and Ecological Risk Assessment (Order 4 and recommendations for appropriate interim (Order 5a) and final (Order 5c) remedial actions to cleanup and abate contamination. The SIWP shall:

- a. Fully assess the lateral and vertical extent of wastes in soil, soil vapor, and groundwater to support evaluation of the potential threat from each media through each relevant exposure pathway for all identified constituents of concern (COC) originating from the Site. "Fully assess" means the Dischargers must perform step-out sampling, both laterally and vertically, until soil and soil vapor concentrations are defined to the applicable ESLs (i.e., direct exposure, vapor intrusion, terrestrial habitat, leaching to groundwater) and groundwater concentrations of COCs are defined to 0.5 µg/L (i.e., the reporting limit for each COC; the method detection limit will be utilized as the practical limitation for defining natural background concentrations). If investigation data are being collected to support the Human Health and Ecological Risk Assessment, applicable health and ecological-based screening levels shall be considered when developing data quality objectives for the SIWP.

- b. Fully assess the extent of discharges along preferential pathways (e.g., stormwater conveyance system, sanitary sewer, other subsurface utilities) to support evaluation of the potential threats to human health.
- c. Update the current concentrations of waste constituents in indoor air by conducting an indoor air survey to assess potential vapor intrusion to building(s) and efficacy of current mitigation measures.
- d. Provide an implementation schedule for delineation activities described above.
- e. Phased Site Investigation may be warranted, and completion of the full Site Investigation may require multiple submittals of work plans for review and approval.
- f. A SIWP, acceptable to the Executive Officer, shall be submitted in conformance with the deadline detailed in Attachment A, Time Schedule.
- g. Scheduling, completion, and reporting of all Site Investigation related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment A, Time Schedule.

#### 4. **Prepare and Submit a Human Health and Ecological Risk Assessment**

Prepare and submit a human health risk assessment (HHRA), and, if applicable, an ecological risk assessment, considering all waste constituents in the soil, soil vapor, surface water, and groundwater, all exposure pathways and sensitive receptors and applying existing regulatory human health and ecological screening levels and/or acceptable risk assessment models in accordance with current guidance. The HHRA shall, at a minimum:

- a. Evaluate the potential risk COCs pose to the complete exposure pathways for soil and groundwater (i.e., ingestion, dermal exposure, inhalation and ecological exposure).
- b. Evaluate the potential risk COCs pose to the vapor intrusion to indoor air pathway for soil vapor and groundwater, including potential short-term exposure to TCE.
- c. Compare available soil, soil vapor, surface water, and groundwater COC concentrations to soil, soil vapor, and groundwater ESLs and MCLs to evaluate the potential and known threats the remaining contamination poses to human health and ecological receptors.
- d. Complete a screening level evaluation or a Site-specific risk assessment. If Dischargers complete a Site-specific risk assessment, exposure levels selected must be relevant for exposure pathways and receptors for the Site and shall be acceptable to the Executive Officer and may be reviewed by the California Office

of Environmental Health Hazard Assessment (OEHHA). Acceptable exposure levels for Site COCs shall be considered when developing remedial alternatives.

- e. The HHERA shall conform with the most current guidance documents<sup>3</sup>, and be acceptable to the Executive Officer.
- f. A HHERA, acceptable to the Executive Officer, shall be submitted in conformance with the deadlines in Attachment A, Time Schedule.

## 5. Conduct Remedial Actions

Develop and implement a cleanup and abatement program for the cleanup of wastes in the soil, soil vapor, and groundwater and the abatement of the effects of the discharges of waste on beneficial uses of water, human health, and the environment. Remedial actions shall include, at a minimum:

- a. Submit an Interim Remedial Action workplan, consistent with State Water Board Resolution No. 92-49, to evaluate interim remedial action alternatives where COCs exceed screening levels for protection of human health and the environment. The IRAP shall address on-Site and off-Site areas (if applicable) and provide the technical basis for selecting and designing final remedial measures. The workplan shall recommend one or more alternatives for implementation and include plans to address immediate threats identified through currently available information and from data collected during SIWP implementation. The workplan shall specify a proposed time schedule. Work may be phased to allow the investigation to proceed efficiently.
- b. Complete tasks in Interim Remedial Action workplan and submit a technical report acceptable to the Executive Officer documenting completion. For ongoing actions, such as soil vapor extraction or indoor air remediation and/or monitoring, the report shall document start-up as opposed to completion.
- c. Develop a comprehensive Remedial Action Plan(s) (RAP) for cleanup of wastes in the soil, soil vapor and groundwater originating from the Site and submit to the Lahontan Water Board for review and approval. The RAP shall include, at a minimum:
  - i. A feasibility study or assessment report for evaluation of the cleanup technologies considered for remediation of soil, soil vapor and groundwater and the need for interim remedial measures and pilot tests. Multiple remedial

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<sup>3</sup> Preliminary Endangerment Assessment Guidance Manual (DTSC, Revised October 2015), Supplemental Vapor Intrusion Guidance, DTSC HERO HHRA Note 5, Vapor Intrusion Mitigation Advisory (DTSC, 2011b), San Francisco Bay Regional Water Board Vapor Intrusion Framework (SF Bay Water Board, 2014), and Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (USEPA, 2015)

measures may be needed and may be implemented to achieve all cleanup goals.

- ii. Cleanup proposals for soil, soil vapor and groundwater that comply with State Water Board Resolution No. 92-49 and Resolution No. 68-16.
  - iii. 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 temporal feasibility, and immediate and/or future beneficial results.
  - iv. Description of any pilot projects intended to be implemented.
  - v. Estimation of cumulative mass of wastes to be removed with the selected method. Include all calculations and methodology used to obtain this estimate.
  - vi. A proposed schedule for completion of the RAP.
- d. A RAP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements detailed in Attachment A, Time Schedule.
  - e. Scheduling, implementation, completion, and reporting of all RAP related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment A, Time Schedule.

## **6. Prepare and Submit a Public Participation Plan**

The Dischargers shall submit information and take actions addressing public participation requirements of Water Code sections 13307.5 and 13307.6 as required in Attachment A or when otherwise directed by the Executive Officer. The Dischargers are required to prepare and submit a Public Participation Plan for review and approval by the Executive Officer, with the goal of having the Lahontan Water Board provide the stakeholders and other interested persons with periodic, meaningful opportunities to review, comment upon, and to influence investigation and cleanup activities at the Site. The following tasks shall be completed by the deadlines in Attachment A:

- a. Submit an interested persons contact list.
- b. Submit a draft fact sheet that provides information, appropriately targeted to the literacy and translational needs of the community, about the investigation and remedial activities concerning the discharges of waste at the Site.
- c. Deliver an approved fact sheet to all interested persons on a schedule to be determined by the Executive Officer.

- d. Public participation activities shall coincide with key decision-making points throughout the process as specified or as directed by the Executive Officer.
- e. Scheduling, implementation, completion, and reporting of all public participation plan related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment A, Time Schedule.

## 7. **Conduct Groundwater Monitoring**

Implement a groundwater monitoring program if determined necessary following Site Investigation completion (Order No. 3) as set forth in Attachment B. The groundwater monitoring reports shall be submitted according to the schedule specified in Attachment A.

## 8. **Time Schedule**

The Dischargers shall submit all required work plans and reports and complete work within the schedule in any approved work plan or RAP, and the time schedule set forth in Attachment A attached hereto and incorporated herein by reference, which may be revised by the Executive Officer at his/her discretion.

## **OTHER REQUIREMENTS AND SPECIFICATIONS**

## 9. **Authorized Inspection and Entry**

The Lahontan Water Board's authorized representative(s) shall 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.

## 10. **Contractor/Consultant Qualification:**

As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California registered professional civil engineer or geologist and signed by the registered professional. All technical reports submitted by the Discharger(s) shall 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 knowledge, the report is true, complete, and accurate. All technical documents shall be signed by and stamped

with the seal of the above-mentioned qualified professionals that reflects a license expiration date.

#### **11. Compliance with All Laws and Requirements**

This Order is not intended to permit or allow the Discharger(s) to cease any work required by any other Order issued by the Lahontan Water Board, nor shall 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 Discharger(s) 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.

#### **12. Notice of Changed Name or Ownership**

The Discharger(s) shall 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 shall provide 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) also shall provide a notice 30-days in advance, by letter, to the succeeding owner/operator of the existence of this Order and shall 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.

#### **13. 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 Regional Board. With written justification, the Lahontan Water Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all work shall 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.

#### **14. Extensions**

In the event compliance cannot be achieved within the terms of this Order, the Discharger(s) has the opportunity to request, in writing, an extension of the time specified. The extension request shall 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 shall 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 denied.



### **15. 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 Order shall be made by the Executive Officer or his/her designee. Decisions and directives made by the Executive Officer with respect to this Order shall be as if made by the Lahontan Water Board.

### **16. Continue Uninterrupted Cleanup and Abatement**

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.

### **17. Cost Reimbursement**

Reimburse the Lahontan Water Board for reasonable costs associated with oversight of the investigation and cleanup of the waste at or emanating from the Site. Provide the Lahontan Water Board with the name or names and contact information for the person to be provided billing statements from the State Water Resources Control Board.

### **18. 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 shall be signed by a senior authorized representative (not by a consultant). The perjury statement shall 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.”

## 19. Electronic Submission of Reports

On September 30, 2004, the State Water Board adopted the resolution to revise regulations in Chapter 30, Division 3 of Title 23 of CCR, which requires persons to ensure electronic submission of laboratory analytical data (i.e., soil, soil vapor, or groundwater chemical analysis) and locational data (i.e., location and elevation of groundwater monitoring wells) via the Internet to the State Water Board's GeoTracker database. You must upload all available Electronic submittal of information (ESI) concerning the Site to the State Water Board's GeoTracker database: the report (in PDF format), laboratory analytical data (in electronic data format [EDF]), monitoring event information in GEO\_WELL format, an updated site map (GEO\_MAP) showing any new monitoring well locations, boring logs in PDF (GEO\_BORE) to be used to link to well locations, monitoring well latitude and longitude (GEO\_XY) survey data, and monitoring well 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 Water Board. The regulations and other background information are available at <https://geotracker.waterboards.ca.gov>

## 20. 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.

## 21. 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

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Figure 6: EKI and PES Multi-Depth Grab Groundwater Sample Locations and PCE Results

Figure 7 PCE in On-Site and Off-Site Passive Soil Gas Samples

Figure 8 Passive Soil Gas Survey Tetrachloroethene

Figure 9 Passive Soil Gas Survey Benzene

Figure 10 Passive Soil Gas Survey Trichloroethene

Figure 11 Preferential Pathway Inventory

Figure 12 Annotated Dissolved PCE in Groundwater Plume Map

Attachments:

Attachment A: Time Schedule

Attachment B: Monitoring and Reporting Program for Cleanup and Abatement Order  
No: R6T-2022-(PROPOSED)

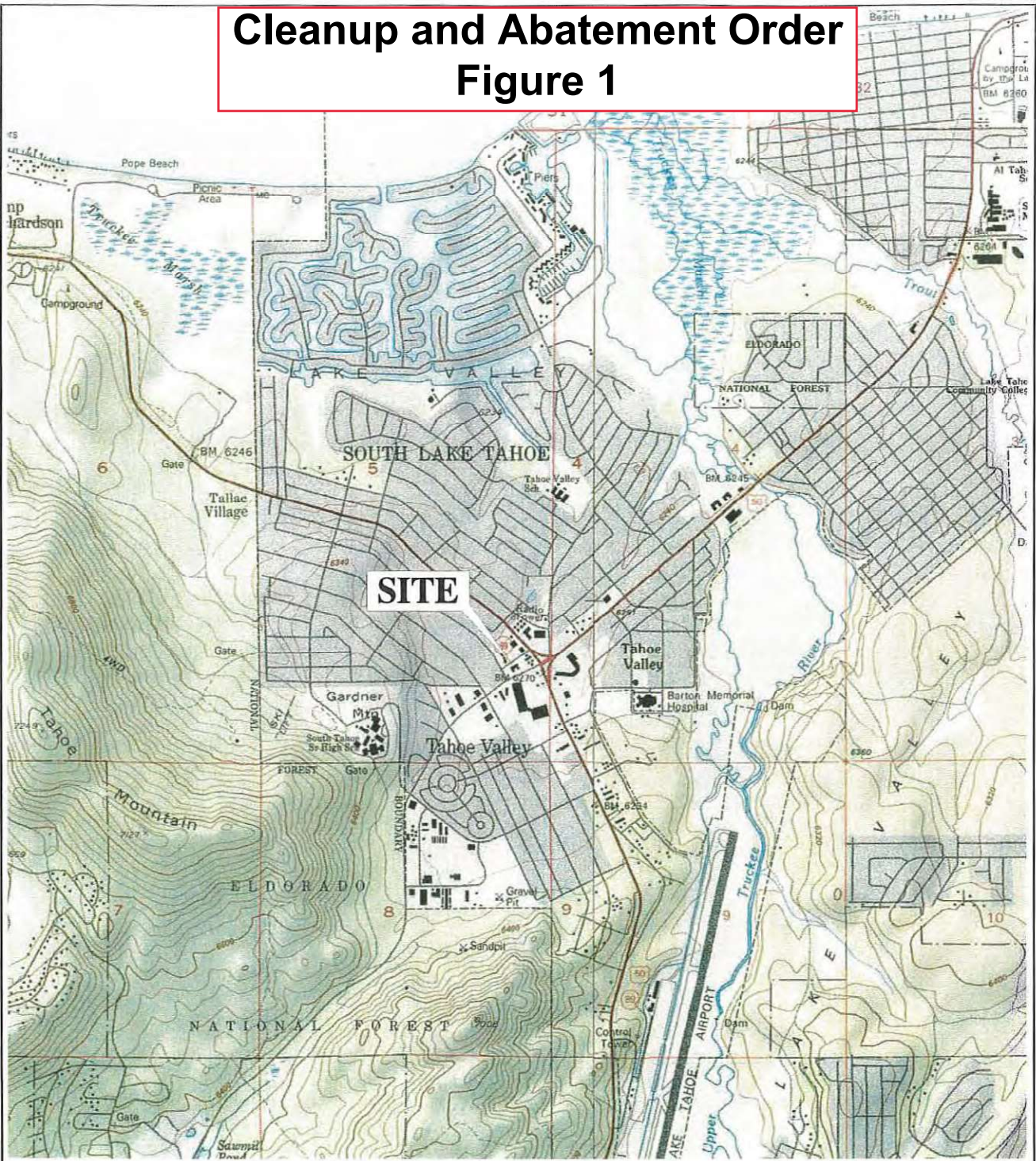
## FIGURES

**FIGURE 1: SITE VICINITY MAP, RESULTS OF SOIL AND GROUNDWATER INVESTIGATIONS AT THE BIG O TIRE STORE SITE (LFR, 2006)**

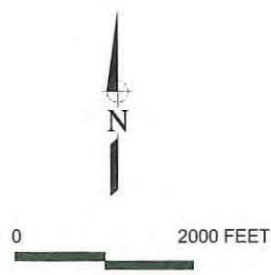
LFR. 6 August 2006. Results of Soil and Groundwater Investigations at the Big O Tire Store Site, Big O Tires, 1961 South Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 1

003.09449.00.000.F1.A1.021406iscJHE



MAP SOURCE:  
U.S.G.S. SOUTH LAKE TAHOE, CA  
15' Quadrangle  
1:24,000 (1 INCH = 2,000 FEET)



Site Vicinity Map

Big O Tire Property, 1961 S. Lake Tahoe Blvd., S. Lake Tahoe, California



Figure 1

**FIGURE 2: SITE PLAN, REVISED PHASE 2 WORK PLAN  
(WELSCH HAGEN ASSOCIATES [WHA], 2021)**

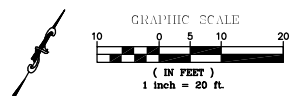
WHA. 20 May 2021. Revised Phase 2 Work Plan, Former Big O Tires Site, 1961 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 2



- LEGEND:**
- B-1 (red dot) SOIL BORING ADVANCED BY HARDING ESE / LFR
  - Roll up door symbol (blue rectangle with 'W')
  - Hydraulic lift symbol (red 'H')
  - Passive soil gas samples (blue circle)
  - 24" TOP 5.99' BOT FL: 7.97' (red line) DEPTH BELOW LASER LEVEL
  - Electric lateral (red line)
  - Water lateral (blue line)
  - Gas lateral (orange line)
  - Storm drain (green line)
  - Sanitary sewer lateral (purple line)
  - Pneumatic line (brown line)

**SITE PLAN**  
**FORMER BIG O TIRES SITE**  
**1961 LAKE TAHOE BLVD.**  
**SOUTH LAKE TAHOE CA.**  
**APN: 023-523-008**



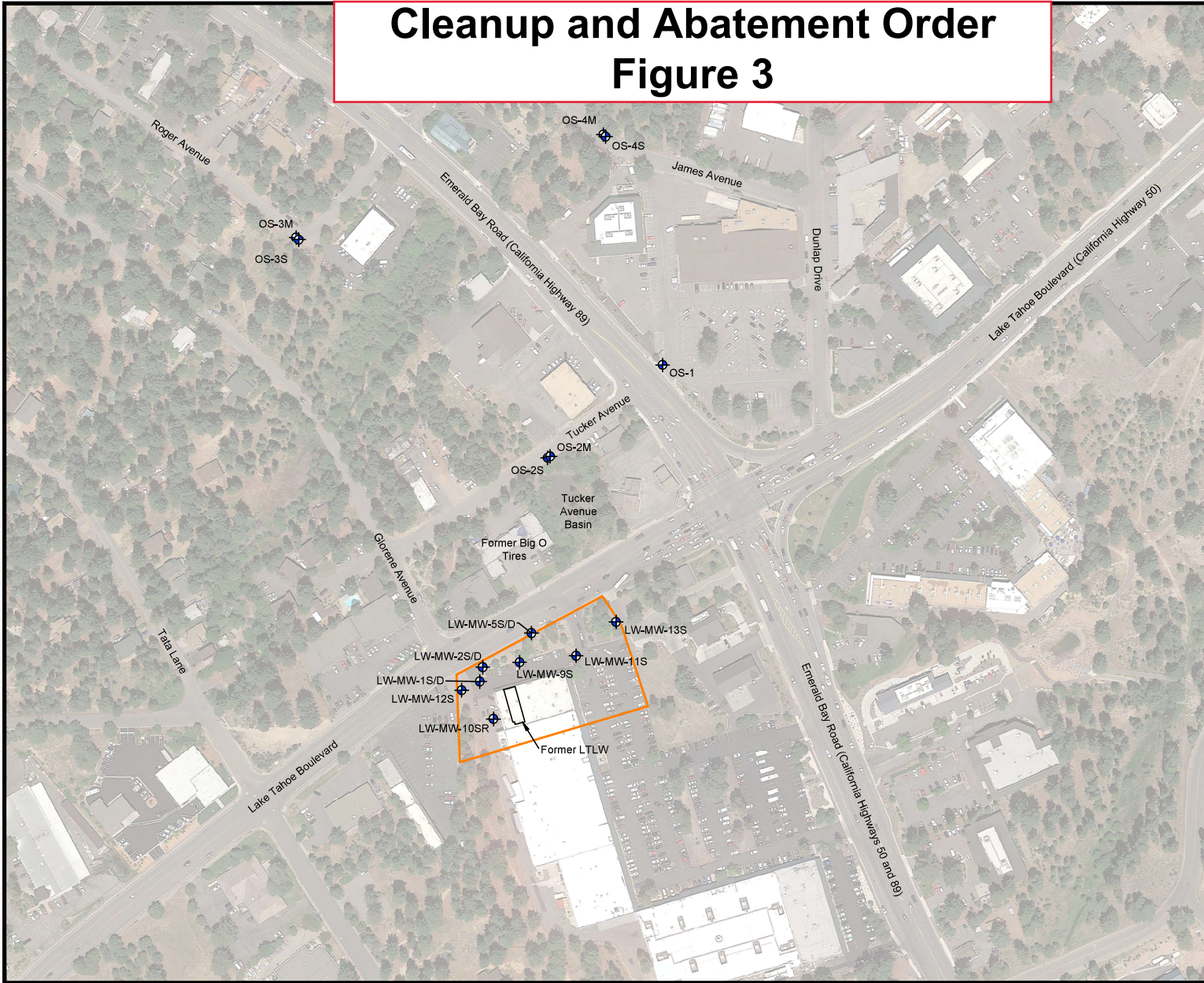
**FIGURE 2**



**FIGURE 3: LAKE TAHOE LAUNDRY WORKS SITE PLAN AND VICINITY, THIRD QUARTER 2021 MONITORING REPORT (PES, 2021)**

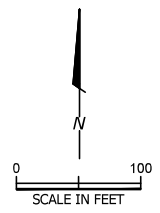
PES. 15 December 2021. Third Quarter 2021 Monitoring Report, Former Lake Tahoe Laundry Works, 1024 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 3



**Explanation**

- Lake Tahoe Laundry Works (LTLW) Site
- OS-1 Groundwater Monitoring Well



Aerial Photo: June 07, 2018 (Google 2019)  
All locations are approximate



**Site Plan and Vicinity**  
Quarterly Monitoring Report  
Former Lake Tahoe Laundry Works  
South Lake Tahoe, California

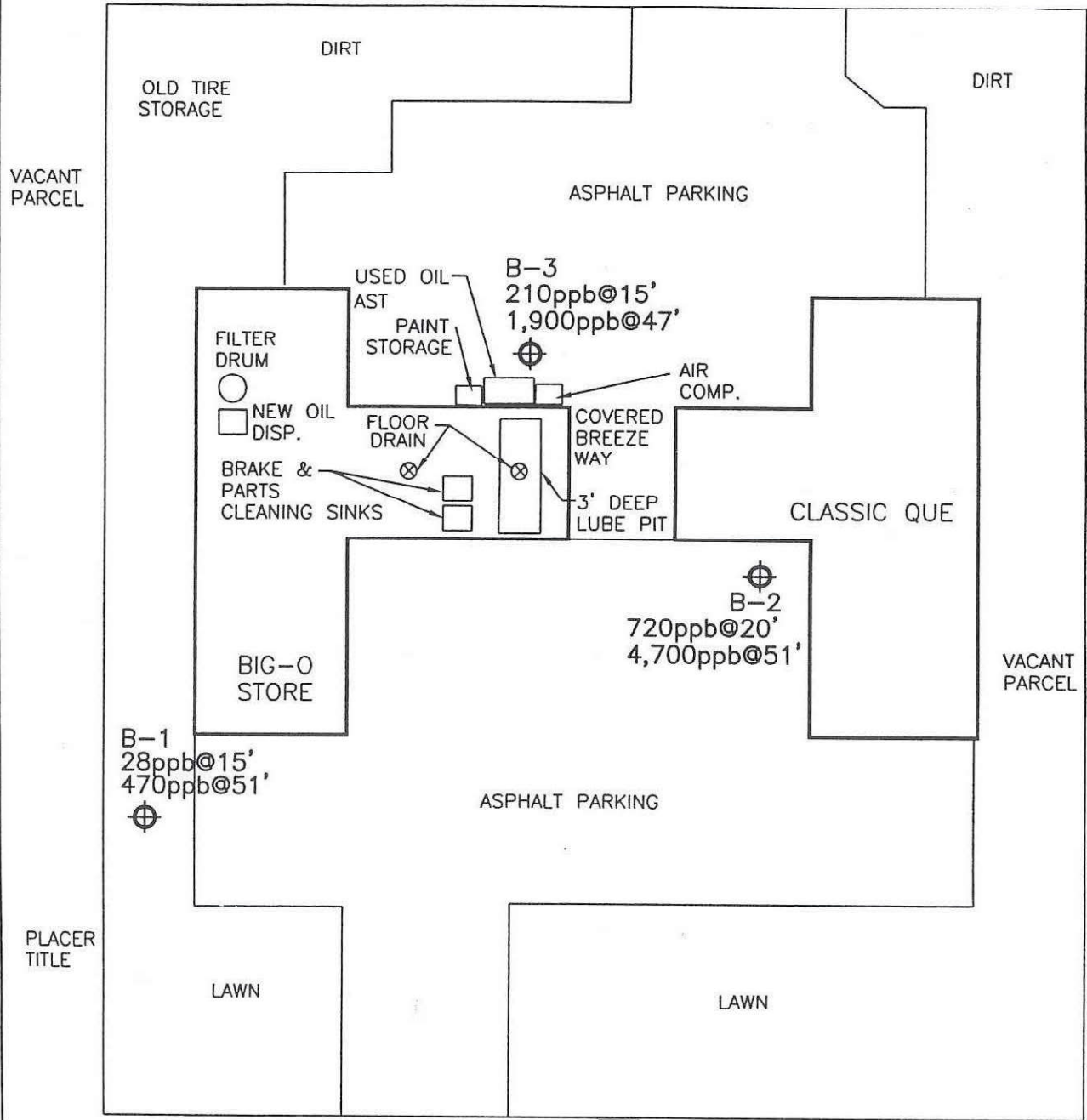
PLATE  
**2**

**FIGURE 4 SITE PLAN, GROUNDWATER INVESTIGATION  
(HARDING ESE, INC., 2001)**



Harding ESE. 30 October 2001. Groundwater Investigation, Big-O Tire Center, 1961 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 4

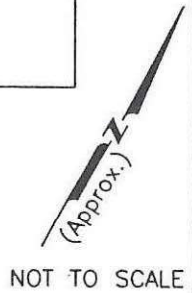
TUCKER AVE.



**LEGEND**

- B-1 APPROXIMATE LOCATION OF HARDING ESE BORING WITH TETRACHLOROETHENE CONCENTRATIONS IN GROUNDWATER (PARTS PER BILLION (ppb))
- 
-  DROP INLET

LAKE TAHOE BLVD.



**Harding ESE**

A MACTEC COMPANY  
Engineering, Planning, Surveying,  
& Construction Services

**SITE PLAN**  
BIG-O TIRE CENTER  
1961 SOUTH LAKE TAHOE BLVD.  
SOUTH LAKE TAHOE, CALIFORNIA

FIGURE

1

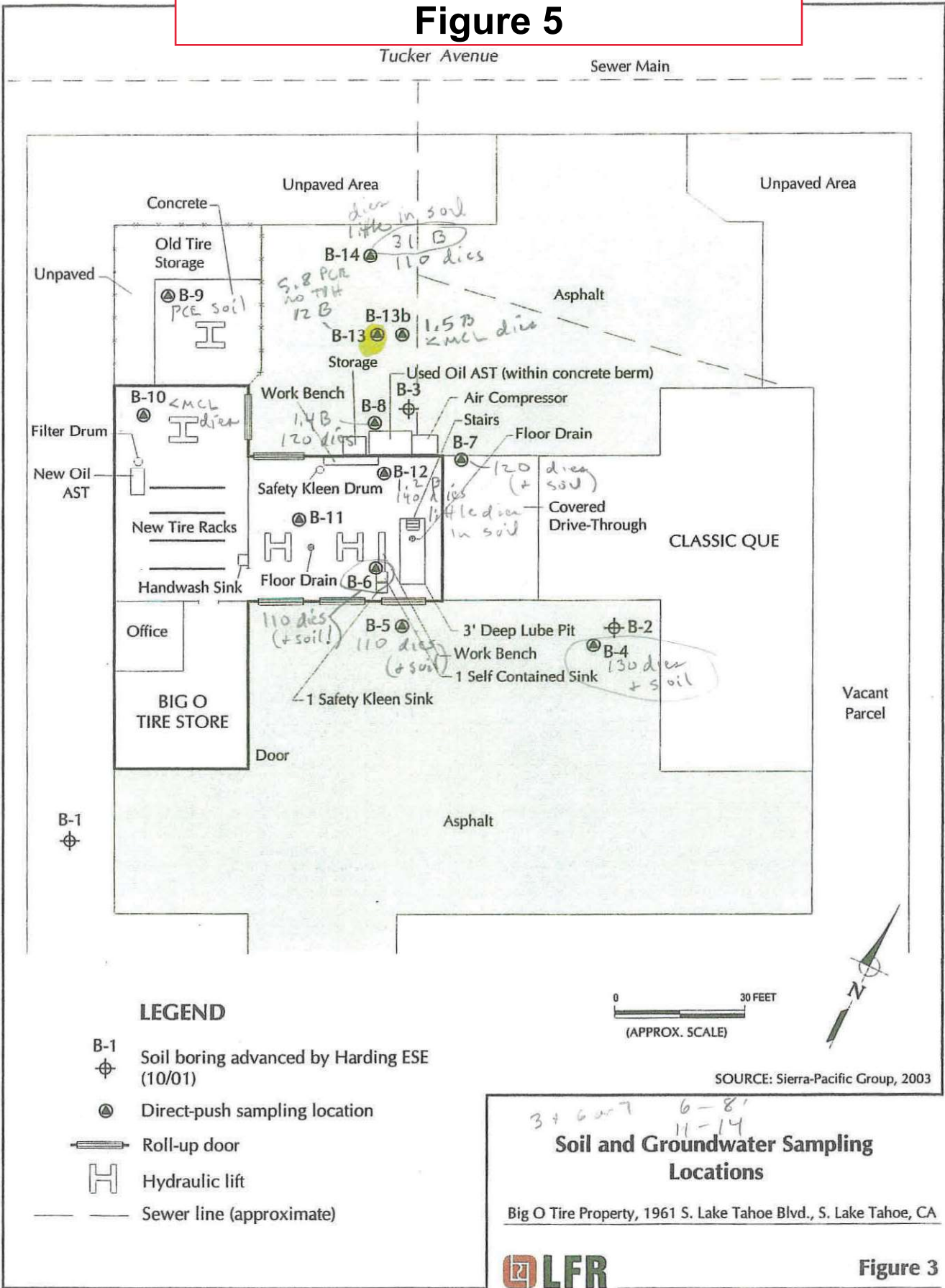
DRAWN KLD	JOB NUMBER 54374.02	APPROVED <i>KLD</i>	DATE 10/22/01	REVISED	DATE
--------------	------------------------	------------------------	------------------	---------	------

**FIGURE 5 SOIL AND GROUNDWATER SAMPLING LOCATIONS, RESULTS OF  
SOIL AND GROUNDWATER INVESTIGATIONS AT THE BIG O TIRE STORE SITE  
(LFR, 2006)**

LFR. 6 August 2006. Results of Soil and Groundwater Investigations at the Big O Tire Store Site, Big O Tires, 1961 South Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order

## Figure 5



Tucker Avenue

Sewer Main

Unpaved Area

Unpaved Area

Concrete

Old Tire Storage

Unpaved

B-9  
PCE soil

B-14

*31 B*  
*110 dies*  
*5.8 PCR*  
*no THH*  
*12 B*

B-13b

B-13

*1.5 B*  
*<MCL dies*

Asphalt

Storage

Used Oil AST (within concrete berm)

B-3

Air Compressor

Stairs

B-7

Floor Drain

Filter Drum

B-10

*<MCL dies*

Work Bench

B-8

*1.4 B*  
*120 dies*

New Oil AST

Safety Kleen Drum

B-12

*1.2 B*  
*140 dies*  
*1.4 B*  
*140 dies*  
*in soil*

B-7

*120 dies*  
*(+ soil)*

New Tire Racks

B-11

Handwash Sink

Floor Drain

B-6

Covered Drive-Through

CLASSIC QUE

Office

B-5

*110 dies*  
*(+ soil)*

*110 dies*  
*(+ soil)*

3' Deep Lube Pit

B-2

Work Bench

B-4

*130 dies*  
*+ soil*

BIG O TIRE STORE

1 Safety Kleen Sink

1 Self Contained Sink

Vacant Parcel

Door

Asphalt

B-1

0 30 FEET  
(APPROX. SCALE)



SOURCE: Sierra-Pacific Group, 2003

*3 + 6 or 7*     *6-8'*  
*11-14'*

**Soil and Groundwater Sampling Locations**

Big O Tire Property, 1961 S. Lake Tahoe Blvd., S. Lake Tahoe, CA



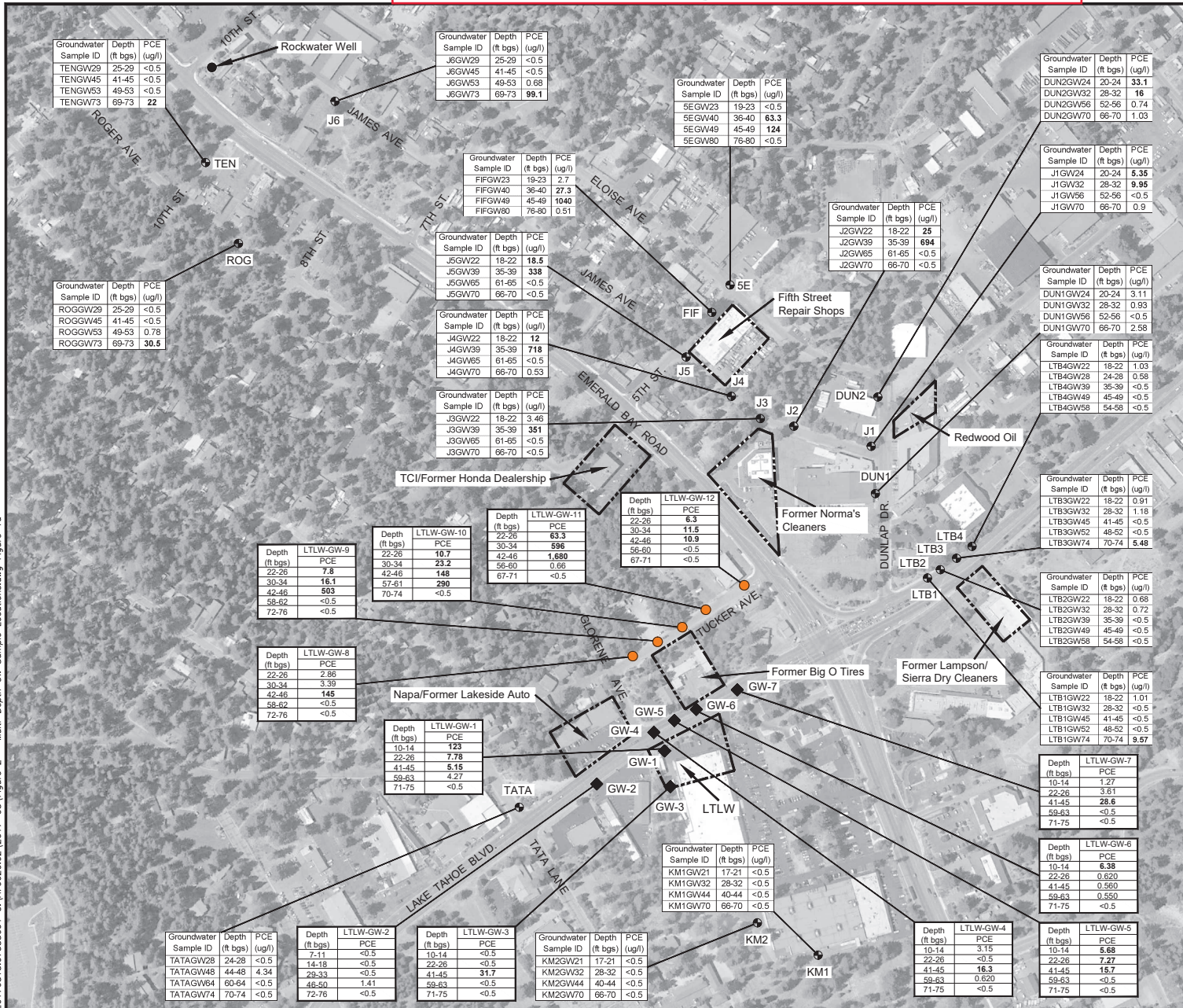
Figure 3

**FIGURE 6: EKI AND PES MULTI-DEPTH GRAB GROUNDWATER SAMPLE LOCATIONS AND PCE RESULTS, GROUNDWATER INVESTIGATION PLANNING AND PROGRESS REPORT NO. 2 REVISED (OCTOBER 11, 2018)**

EKI. 11 October 2018. Groundwater Investigation Planning and Progress Report No. 2 REV, Former Lake Tahoe Laundry Works, 1024 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order

## Figure 6



**Legend:**

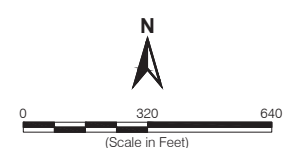
- EKI Approximate Multi-Depth Grab Groundwater Sample Location (June/July 2017)
- ◆ PES Approximate Multi-Depth Grab Groundwater Sample Location (January 2018)
- EKI Approximate Multi-Depth Grab Groundwater Sample Location (October 2018)

**Abbreviations:**

ft bgs = feet below ground surface  
 LTLW = Lake Tahoe Laundry Works  
 MCL = maximum contaminant level  
 ug/l = micrograms per liter  
 PCE = tetrachloroethene/perchloroethylene

**Notes:**

- All locations are approximate.
- Bold value in data box indicates that measured PCE concentration in sample exceeds current California MCL.
- Basemap source: Google Earth Pro, date of imagery 13 July 2016.



**EKI and PES Multi-Depth Grab Groundwater Sample Locations and PCE Results**

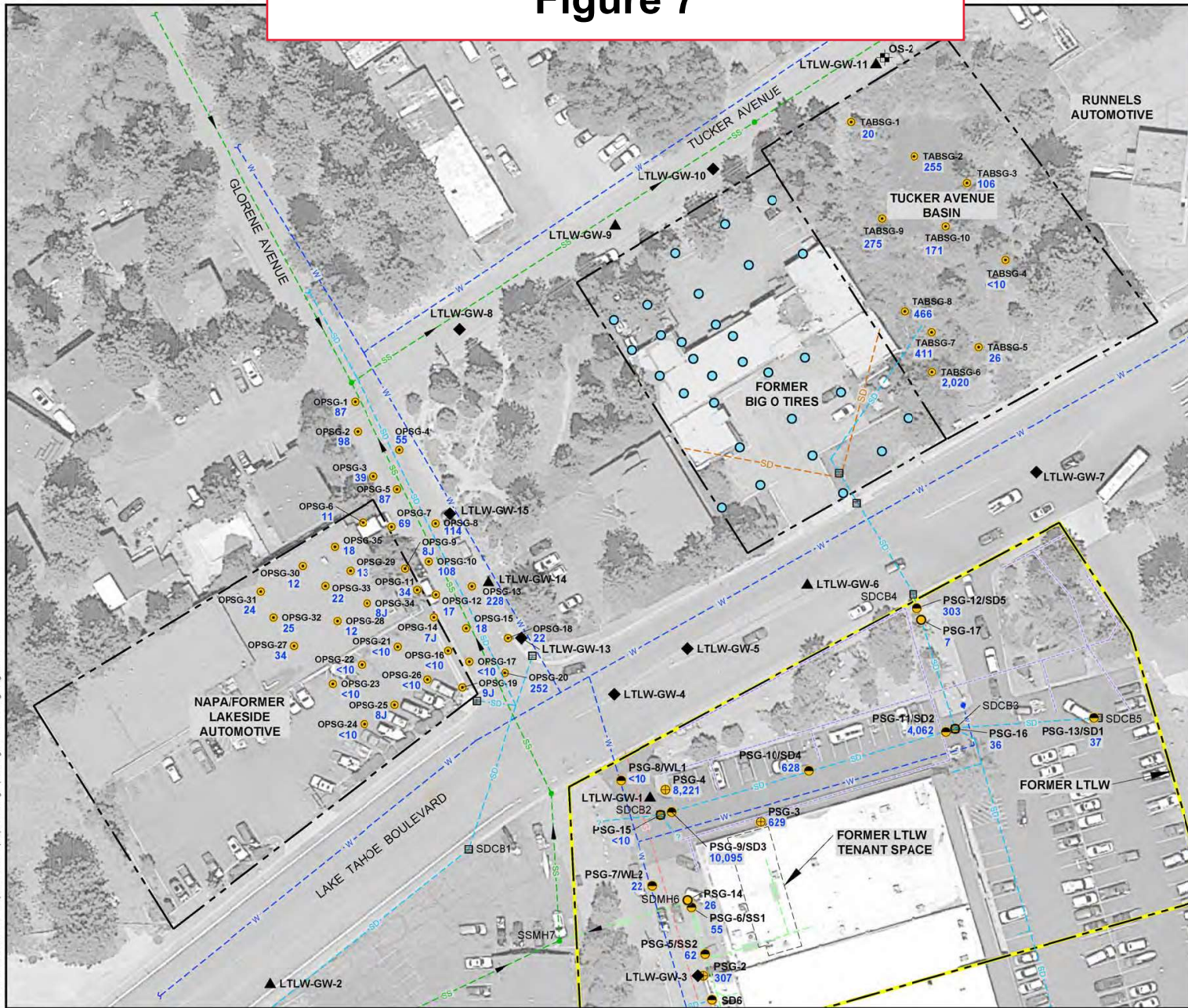
20170818.07585091 G:\A70020.02\17-08\Figure 2 - Multi-Depth GW Sample Locations.dwg Figure 1a



**FIGURE 7: PCE IN ON-SITE AND OFF-SITE PASSIVE SOIL GAS SAMPLES,  
INVESTIGATION SUMMARY REPORT (EKI, 2019)**

EKI. 4 October 2019. Investigation Summary Report, Former Lake Tahoe Laundry Works, 1024 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 7



**Legend:**

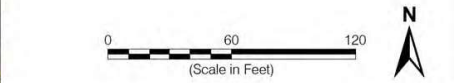
- Approximate Property Boundaries
- OPSG-1 Off-Site Passive Soil Gas Sample
- Pending Passive Soil Gas Sample
- PSG-10/SD5 Stage 1 Utility Trench Vapor/Soil Boring
- PSG-4 Stage 1 Background Soil Vapor Sample (Outside of Utility Trench)
- PSG-14 Stage 1 Sewer/Storm Drain Vapor Sample
- LTLW-GW-9 CPT and GGW Sample
- LTLW-GW-3 GGW Sample
- OS-2 Monitoring Well Pair
- 55 PCE Mass in Nanograms in Passive Soil Gas Samples
- <10 PCE Not Detected at or Above the Indicated Reporting Limit
- J Estimated Concentration Detected Below Laboratory Reporting Limit
- SS STPUD Sewer Main and Manhole
- On-Site Sewer Line
- W Water Line and Fire Hydrant
- SG Natural Gas Line
- SD Subsurface Stormwater System
- SD Historical Subsurface Stormwater System Prior to 1987
- SVE Remediation System Trench
- Identifier for Sanitary Sewer Manholes (SSMH) and Storm Drain Catch Basins (SDCB)

**Abbreviations:**

- CPT = cone penetration test
- GGW = grab groundwater
- LTLW = Lake Tahoe Laundry Works
- PCE = tetrachloroethene
- STPUD = South Tahoe Public Utility District
- SVE = soil vapor extraction

**Notes:**

- All locations are approximate.
- Basemap source: Google Earth Pro, date of imagery 7 June 2018.



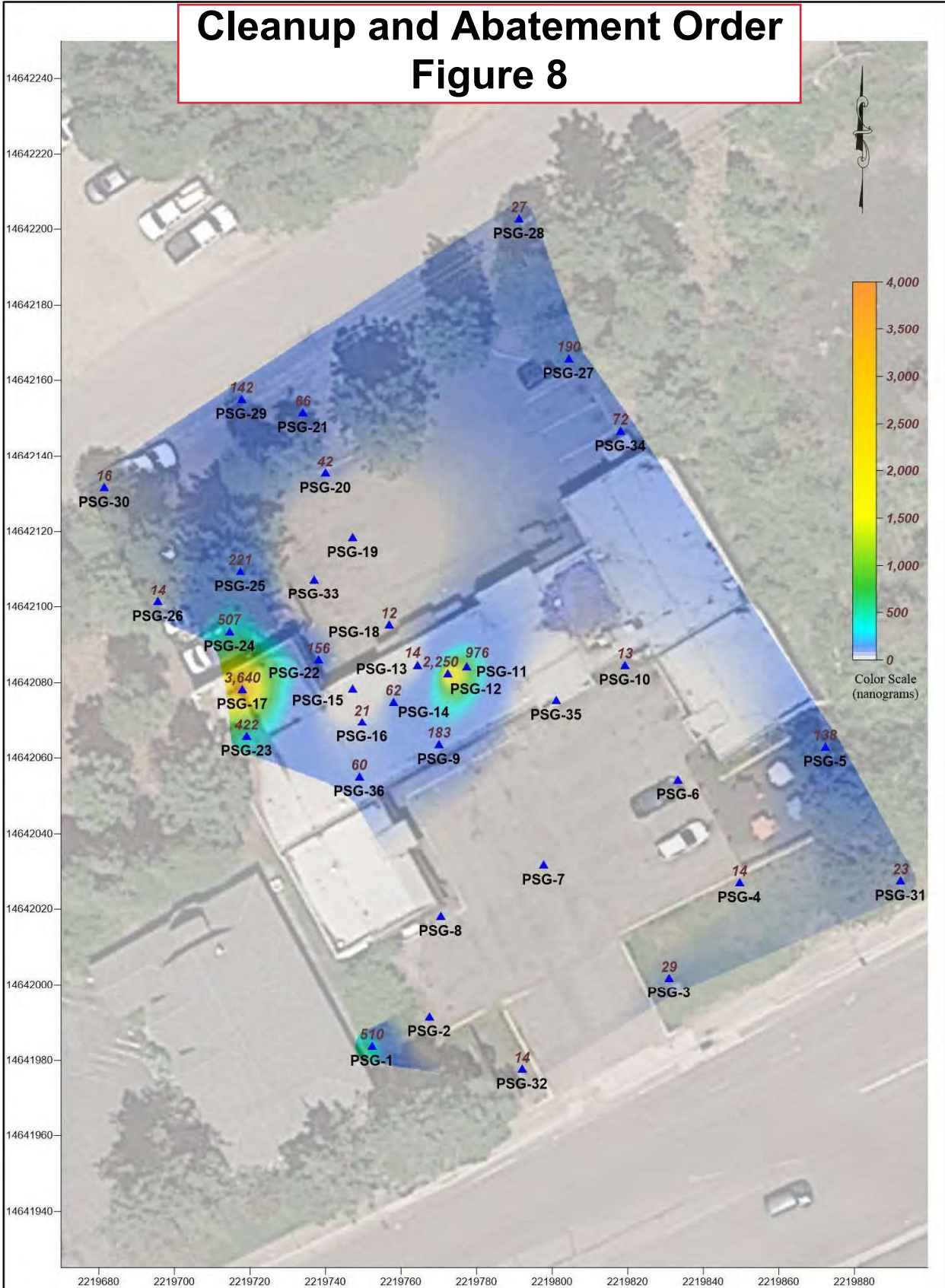
**PCE in On-Site and Off-Site Passive Soil Gas Samples**

20190315.08264897 G:\A70020.11\Report\_Dwgs\NewFigure\_3-2.dwg Figure 3-2a

**FIGURE 8 PASSIVE SOIL GAS SURVEY TETRACHLOROETHENE, PASSIVE SOIL  
GAS INVESTIGATION REPORT (WHA, 2020)**

WHA. 10 November 2020. Passive Soil Gas Investigation Report, Former Bigo O  
Tires Site, 1961 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 8



System: State Plane  
 Zone: Nevada West  
 Datum: NAD 1983  
 Coordinate Units: Feet

**LEGEND**  
 1,000 NANOGRAMS/SAMPLER  
 ▲ PASSIVE SOIL-GAS SAMPLE LOCATION

Scale in Feet  
 0 25 50

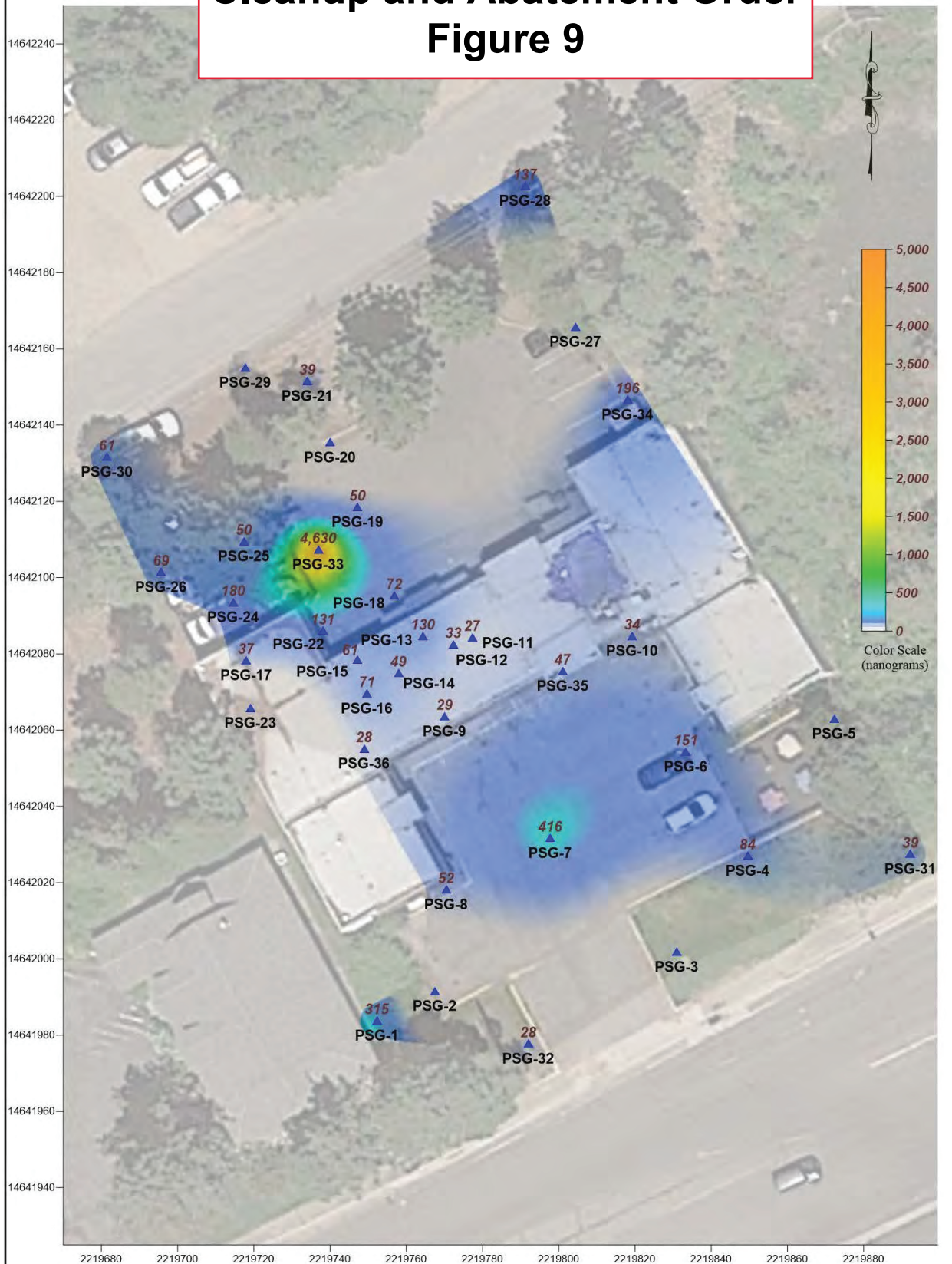
**BEACON ENVIRONMENTAL**  
 2203A Commerce Road, Suite 1, Forest Hill, MD 21050 USA  
 www.Beacon-USA.com 1-410-838-8780  
 Beacon Project No. 5412, October 2020

**Figure 4**  
 Passive Soil-Gas Survey  
 Tetrachloroethene  
 Former Big O Tires  
 South Lake Tahoe, CA

**FIGURE 9 PASSIVE SOIL GAS SURVEY BENZENE, PASSIVE SOIL GAS  
INVESTIGATION REPORT (WHA, 2020)**

WHA. 10 November 2020. Passive Soil Gas Investigation Report, Former Bigo O  
Tires Site, 1961 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 9



System: State Plane  
 Zone: Nevada West  
 Datum: NAD 1983  
 Coordinate Units: Feet

**LEGEND**

- 1,000 NANOGRAMS/SAMPLER
- ▲ PASSIVE SOIL-GAS SAMPLE LOCATION

Scale in Feet



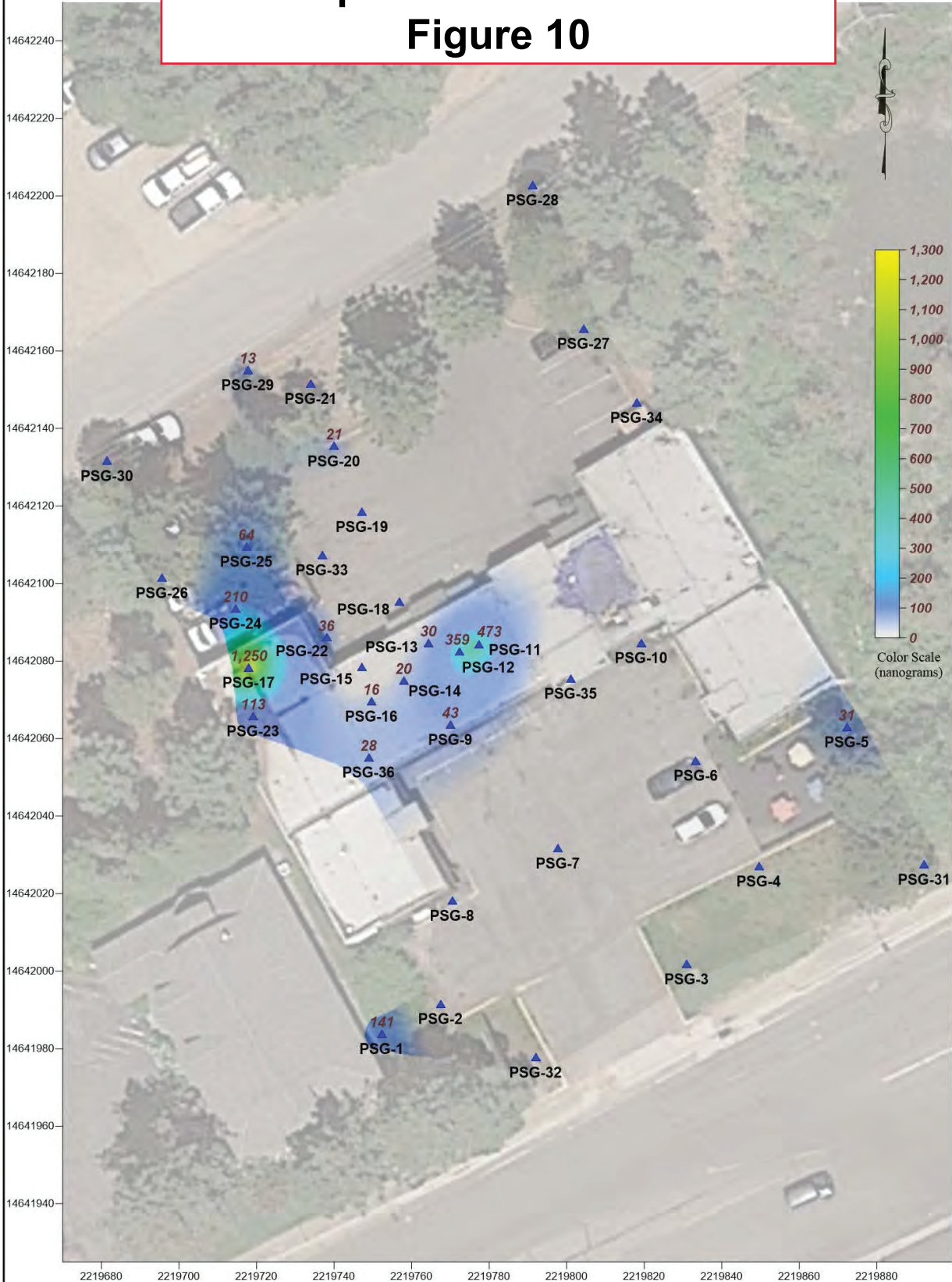
**BEACON ENVIRONMENTAL**  
 2203A Commerce Road, Suite 1, Forest Hill, MD 21050 USA  
 www.Beacon-USA.com 1-410-838-8780  
 Beacon Project No. 5412, October 2020

**Figure 6**  
 Passive Soil-Gas Survey  
 Benzene  
 Former Big O Tires  
 South Lake Tahoe, CA

**FIGURE 10 PASSIVE SOIL GAS SURVEY TRICHLOROETHENE, PASSIVE SOIL  
GAS INVESTIGATION REPORT (WHA, 2020)**

WHA. 10 November 2020. Passive Soil Gas Investigation Report, Former Bigo O  
Tires Site, 1961 Lake Tahoe Boulevard, South Lake Tahoe, California.

# Cleanup and Abatement Order Figure 10



System: State Plane  
 Zone: Nevada West  
 Datum: NAD 1983  
 Coordinate Units: Feet

**LEGEND**  
 1,000 NANOGRAMS/SAMPLER  
 ▲ PASSIVE SOIL-GAS SAMPLE LOCATION

Scale in Feet  
 0 25 50

**BEACON ENVIRONMENTAL**  
 2203A Commerce Road, Suite 1, Forest Hill, MD 21050 USA  
 www.Beacon-USA.com 1-410-838-8780  
 Beacon Project No. 5412, October 2020

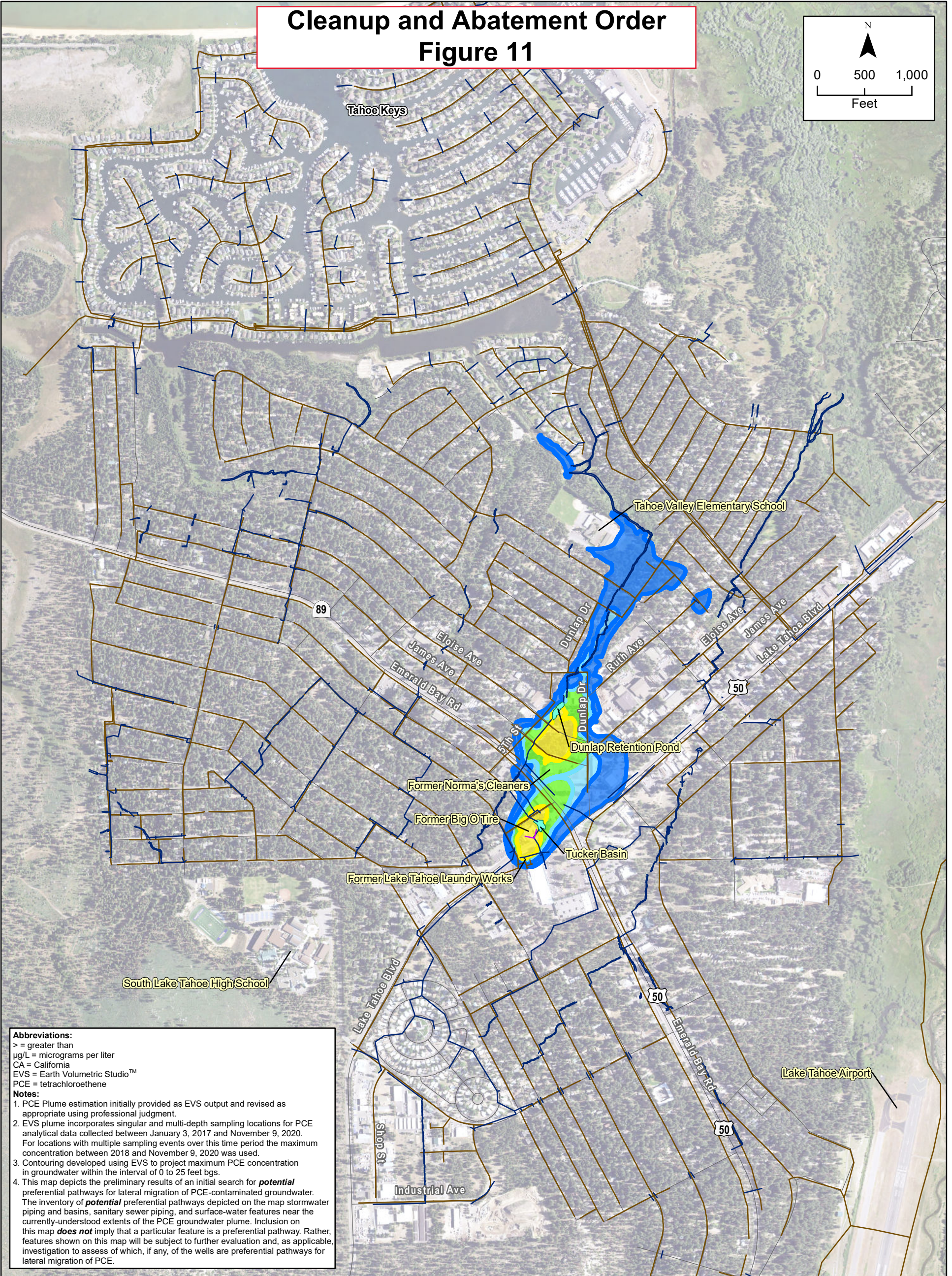
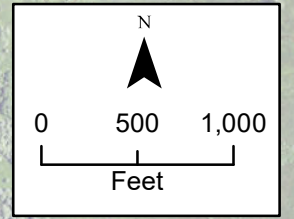
**Figure 5**  
 Passive Soil-Gas Survey  
 Trichloroethene  
 Former Big O Tires  
 South Lake Tahoe, CA



**FIGURE 11: PREFERENTIAL PATHWAY INVENTORY, REGIONAL PLUME  
CHARACTERIZATION SUMMARY REPORT: SOUTH “Y” PCE PLUME 2019-2020  
FIELD SEASON (AECOM, 2022)**

AECOM. 10 June 2022. Regional Plume Characterization Summary Report: South  
“Y” PCE Plume 2019-2020 Field Season.

# Cleanup and Abatement Order Figure 11

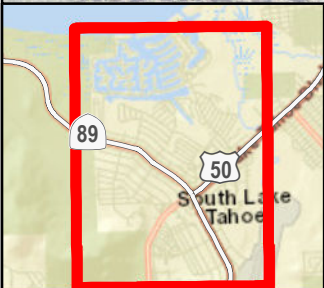


**Abbreviations:**

- > = greater than
- µg/L = micrograms per liter
- CA = California
- EVS = Earth Volumetric Studio™
- PCE = tetrachloroethene

**Notes:**

1. PCE Plume estimation initially provided as EVS output and revised as appropriate using professional judgment.
2. EVS plume incorporates singular and multi-depth sampling locations for PCE analytical data collected between January 3, 2017 and November 9, 2020. For locations with multiple sampling events over this time period the maximum concentration between 2018 and November 9, 2020 was used.
3. Contouring developed using EVS to project maximum PCE concentration in groundwater within the interval of 0 to 25 feet bgs.
4. This map depicts the preliminary results of an initial search for **potential** preferential pathways for lateral migration of PCE-contaminated groundwater. The inventory of **potential** preferential pathways depicted on the map stormwater piping and basins, sanitary sewer piping, and surface-water features near the currently-understood extents of the PCE groundwater plume. Inclusion on this map **does not** imply that a particular feature is a preferential pathway. Rather, features shown on this map will be subject to further evaluation and, as applicable, investigation to assess of which, if any, of the wells are preferential pathways for lateral migration of PCE.



- Stormwater Line
- Sewer Pipeline
- Historical Subsurface Stormwater System
- Basins

- 0 to 25-foot Depth bgs  
PCE Concentration Contours**
- 0.64 µg/L – 2.8 µg/L  
Groundwater Vapor Intrusion  
Screening Level (Residential)
  - 2.8 µg/L – 5.0 µg/L  
Groundwater Vapor Intrusion  
Screening Level (Commercial/Industrial)
  - 5.0 µg/L – 25 µg/L
  - > 25 µg/L

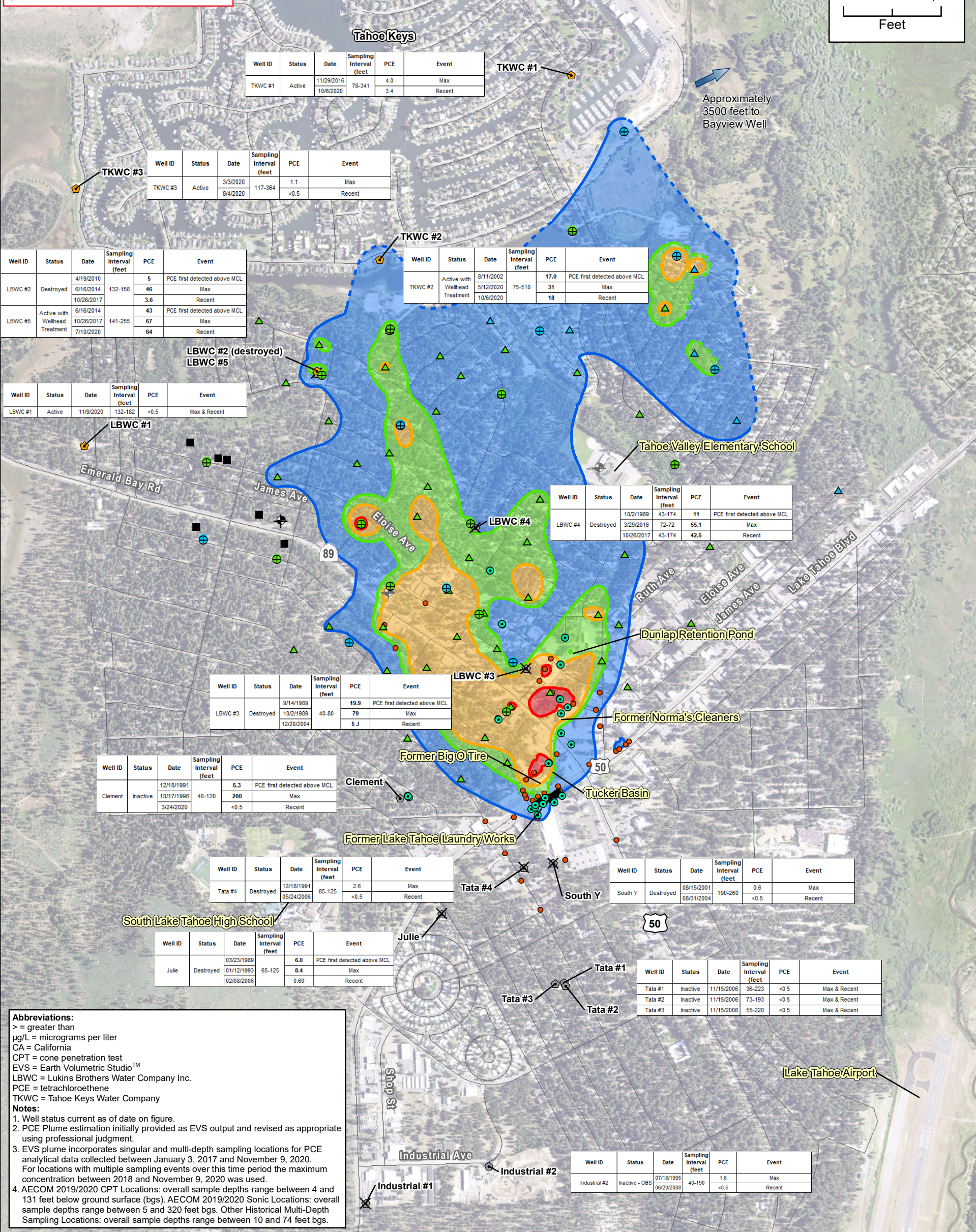
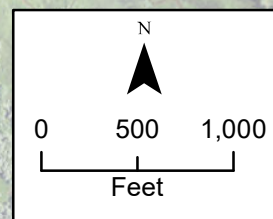
**Figure 14  
Preferential Pathway  
Inventory**  
  
South "Y" PCE Plume  
South Lake Tahoe, CA

**FIGURE 12: ANNOTATED DISSOLVED PCE IN GROUNDWATER PLUME MAP WITH RECENT AND MAXIMUM PCE CONCENTRATIONS IN MUNICIPAL SUPPLY WELLS, REGIONAL PLUME CHARACTERIZATION SUMMARY REPORT: SOUTH "Y" PCE PLUME 2019-2020 FIELD SEASON (AECOM, 2022, ANNOTATED BY LAHONTAN WATER BOARD STAFF)**

AECOM. 10 June 2022. Regional Plume Characterization Summary Report: South "Y" PCE Plume 2019-2020 Field Season.

**Lahontan Water Board Annotation Notes**  
 1) Text boxes were added to show recent and maximum PCE concentrations detected in municipal water supply wells and denote the date and reported concentration when PCE was first detected above the maximum contaminant level (MCL), if applicable.  
 2) **Bold** indicates concentration exceeds MCL.

# Cleanup and Abatement Order Figure 12



**Abbreviations:**  
 > = greater than  
 µg/L = micrograms per liter  
 CA = California  
 CPT = cone penetration test  
 EVS = Earth Volumetric Studio™  
 LBWC = Lukins Brothers Water Company Inc.  
 PCE = tetrachloroethene  
 TKWC = Tahoe Keys Water Company

**Notes:**  
 1. Well status current as of date on figure.  
 2. PCE Plume estimation initially provided as EVS output and revised as appropriate using professional judgment.  
 3. EVS plume incorporates singular and multi-depth sampling locations for PCE analytical data collected between January 3, 2017 and November 9, 2020. For locations with multiple sampling events over this time period the maximum concentration between 2018 and November 9, 2020 was used.  
 4. AECOM 2019/2020 CPT Locations: overall sample depths range between 4 and 131 feet below ground surface (bgs). AECOM 2019/2020 Sonic Locations: overall sample depths range between 5 and 320 feet bgs. Other Historical Multi-Depth Sampling Locations: overall sample depths range between 10 and 74 feet bgs.

	<b>Location Type</b> <ul style="list-style-type: none"> <li>● Historical Single-Depth Sampling Location</li> <li>● Historical Multi-Depth Sampling Location</li> <li>● Active Private Supply Well</li> <li>● Active Small Community Well</li> <li>● Inactive Small Community Well</li> <li>● AECOM 2019 CPT Location</li> <li>● AECOM 2019 Sonic Location</li> <li>● AECOM 2020 CPT Location</li> <li>● AECOM 2020 Sonic Location</li> <li>● Active Municipal Supply Well</li> <li>● Inactive Municipal Supply Well</li> <li>● Destroyed Municipal Supply Well</li> <li>● Monitoring Well Location</li> </ul>	<b>PCE Concentration Contours (dashed where inferred)</b> <ul style="list-style-type: none"> <li>5 - 50 µg/L</li> <li>50 - 100 µg/L</li> <li>100 - 500 µg/L</li> <li>&gt;500 µg/L</li> </ul>
	<p><b>Figure 5 Dissolved PCE in Groundwater Plume Map</b></p> <p>South "Y" PCE Plume South Lake Tahoe, CA</p>	

## ATTACHMENTS

**ATTACHMENT A: TIME SCHEDULE**

## ATTACHMENT A: TIME SCHEDULE

TASK	DEADLINE <sup>4</sup>
<b>Order No. 1, Conceptual Site Model</b>	
Conceptual Site Model:	2 months after Order adoption
<b>Order No. 2, Sampling and Analysis Plan and Quality Assurance Project Plan</b>	
Sampling and Analysis Plan	2 months after Order adoption
Quality Assurance Project Plan	2 months after Order adoption
<b>Order No. 3, Site Investigation Work Plan</b>	
Site Investigation Work Plan	2 months after Order adoption
Commence Site Investigation(s)	Within 2 months of Water Board acceptance
Complete Site Investigation	6 months after Order adoption
Site Investigation Completion Report	9 months after Order adoption
<b>Order No. 4, Submit Human Health and Ecological Risk Assessment</b>	
Human Health and Ecological Risk Assessment	6 months after Order adoption
<b>Order No. 5, Conduct Remedial Actions</b>	
Interim Remedial Action Plan	9 months after Order adoption
Implement Interim Remedial Action Plan	Within 2 months of Lahontan Water Board acceptance
Interim Remedial Action Progress Reports	Every 6 months after Order adoption until task completion
Interim Remedial Action Completion Report	24 months after Order adoption
Remedial Action Plan	24 months after Order adoption
Implement Remedial Action Plan	Within 2 months of Lahontan Water Board acceptance
Remedial Action Plan Progress Reports	Quarterly; 15 <sup>th</sup> of March, June, September, and December
Complete All Remedial Actions	5 years after Order adoption
Remedial Action Completion Report	2 months after remedial action completion

<sup>4</sup> Lahontan Water Board Staff recognizes the limited field season in the Tahoe area and understands extensions may be required due to weather and seasonal constraints. Extensions will be evaluated and granted as described by Order 16.

**ATTACHMENT A: TIME SCHEDULE**

<b>TASK</b>	<b>DEADLINE<sup>5</sup></b>
<b>Order No. 6, Public Participation Plan</b>	
Baseline Community Assessment	2 months after Order adoption
Interested Persons Contact List	2 months after Order adoption
Draft Fact Sheet	2 months after Order adoption
Send Approved Final Fact Sheet	On schedule to be determined by Executive Officer
<b>Order No. 7, Conduct Groundwater Monitoring</b>	
Groundwater Monitoring and Reporting	See Attachment B for monitoring frequencies and reporting requirements (if necessary)

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<sup>5</sup> Lahontan Water Board Staff recognizes the limited field season in the Tahoe area and understands extensions may be required due to weather and seasonal constraints. Extensions will be evaluated and granted as described by Order 16.



**ATTACHMENT B: MONITORING AND REPORTING PROGRAM FOR CLEANUP  
AND ABATEMENT ORDER NO. R6-2022-(PROPOSED)**

**ATTACHMENT B: MONITORING AND REPORTING PROGRAM FOR CLEANUP AND ABATEMENT ORDER NO. R6-2022-(PROPOSED)**

This Monitoring and Reporting Program is part of Cleanup and Abatement Order No. R6-2022-(PROPOSED) (CAO). 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 United States Environmental Protection Agency (USEPA) approved methods. The test methods chosen for detection of the constituents of concern shall be subject to review and concurrence by the Regional 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 within 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 and laboratory sample receipt forms shall be submitted with the report. All analyses must be performed by a State Water Resources Control Board Division of Drinking Water accredited laboratory.

The Los Angeles Water Board's *Quality Assurance Project Plan, September 2008*, can be used as a reference and guidance for project activities involving sample collection, handling, analysis, and data reporting. The guidance is available on the Water Board's website at:

[http://www.waterboards.ca.gov/rwqcb4/water\\_issues/programs/remediation/Board\\_SGV-SFVCleanupProgram\\_Sept2008\\_QAPP.pdf](http://www.waterboards.ca.gov/rwqcb4/water_issues/programs/remediation/Board_SGV-SFVCleanupProgram_Sept2008_QAPP.pdf)

**GROUNDWATER MONITORING**

The Dischargers shall collect groundwater samples from groundwater monitoring wells installed for the purpose of site investigation and monitoring. Any monitoring wells installed in the future shall be added to the groundwater monitoring program and sampled quarterly. The groundwater surface elevation (in feet above mean sea level [MSL]) in all monitoring wells shall be measured and used to determine the gradient and direction of groundwater flow.

The following shall constitute the monitoring program for groundwater.

<b>Constituent</b>	<b>EPA Method</b>
Volatile Organic Compounds (full scan)	EPA 8260B
Temperature	Field <sup>i</sup>
pH	Field <b>Error! Bookmark not defined.</b>
Electrical Conductivity	Field <b>Error! Bookmark not defined.</b>
Dissolved oxygen	Field <b>Error! Bookmark not defined.</b>
Oxidation-Reduction Potential (ORP)	Field <b>Error! Bookmark not defined.</b>
Turbidity	Field <b>Error! Bookmark not defined.</b>

Field\* - to be measured in the field

**ATTACHMENT B: MONITORING AND REPORTING PROGRAM FOR CLEANUP  
AND ABATEMENT ORDER NO. R6-2022-(PROPOSED)**

**REMEDIATION SYSTEMS**

Reports on remediation systems, if applicable, shall contain the following information regarding the site remediation systems:

1. Maps showing location of all remediation wells and groundwater monitoring wells, if applicable;
2. Status of each remediation system including amount of time operating and down time for maintenance and/or repair;
3. Air sparge well operating records including status of each well and volume and pressure of air being injected;
4. Soil vapor extraction well records including status of each well and photo-ionization detector (PID) readings of other acceptable methods of determining relative volatile concentrations taken at a minimum quarterly. Readings of volatile concentrations drawn from soil vapor extraction (SVE) wells need to be taken at a frequency that allows the efficient operation and evaluation of the SVE system. A system operation log to document the system's total hours of operation and parameters, including the system's flow rate, temperature, and applied vacuums at the SVE treatment system and the system manifold;
5. In-Situ well operating records including injection volume, pressure, type and specifications of the amendment being introduced. Prior to implementation of the injection, all in-situ remediation shall enroll under appropriate Waste Discharge Requirements from the Lahontan Water Board;
6. The report shall include documentation and manifest forms of waste generated during operation of the remedial system(s);
7. The report shall include copies of all required valid permits to construct and operate the remedial system(s);
8. The report shall include tables summarizing the operating and performance parameters for the remediation system(s); and
9. System inspection sheets shall document field and maintenance activities conducted during each Site visit and shall be included in quarterly monitoring reports.

**MONITORING FREQUENCIES**

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted, or parameters and locations removed or added by the Executive Officer if Site conditions indicate that the changes are necessary.

**ATTACHMENT B: MONITORING AND REPORTING PROGRAM FOR CLEANUP  
AND ABATEMENT ORDER NO. R6-2022-(PROPOSED)**

**REPORTING REQUIREMENTS**

1. The Dischargers shall report all monitoring data and information as specified herein. Reports that do not comply with the required format will be REJECTED and the Dischargers shall be deemed to be in noncompliance with the Monitoring and Reporting Program.
2. Quarterly groundwater monitoring reports shall be submitted to the Regional Water Board according to the schedule below.

<b>Monitoring Period</b>	<b>Report Due</b>
January – March	May 15
April – June	August 15
July – September	November 15
October – December	February 15

Groundwater monitoring reports shall include a contour map showing groundwater elevations at the Site and the groundwater flow direction. The quarterly groundwater monitoring reports shall include tables summarizing the historical depth-to-water, groundwater elevations, and historical analytical results for each monitoring well. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Water Board. Field monitoring well sampling sheets and well/wellhead inspection and maintenance data sheets shall be completed for each monitoring well sampled and included in the report.

3. Quarterly remediation progress reports shall be submitted to the Regional Water Board according to the schedule below.

<b>Monitoring Period</b>	<b>Report Due</b>
January – March	May 15
April – June	August 15
July – September	November 15
October – December	February 15

**ATTACHMENT B: MONITORING AND REPORTING PROGRAM FOR CLEANUP  
AND ABATEMENT ORDER NO. R6-2022-(PROPOSED)**

4. Remediation progress reports shall include an estimate of the cumulative mass of contaminant removed from the subsurface, system operating time, the effectiveness of the remediation system, any field notes pertaining to the operation and maintenance of the system, and, if applicable, the reasons for and duration of all interruptions in the operation of any remediation system and actions planned or taken to correct and prevent interruptions.
  5. In reporting the monitoring data, the Dischargers shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements. All data shall be submitted in electronic form in a form acceptable to the Regional Water Board.
-