M E M O R A N D U M

TO: Patty Kouyoumdjian
Executive Officer,
Lahontan Regional Water Quality Control Board

FROM: Lauri Kemper
Assistant Executive Officer,
Lahontan Regional Water Quality Control Board

DATE: July 18, 2016

SUBJECT: **Proposed Revisions to Lake Tahoe Laundry Works Cleanup and Abatement Order No. R6T-2016-PROP, El Dorado County**

The Lahontan Regional Water Quality Control Board's Prosecution Team (Prosecution Team) is submitting a revised proposed Cleanup and Abatement Order (CAO) for the Lake Tahoe Laundry Works for your consideration. Proposed revisions to the CAO are not shown in ~~strikeout~~/underline text because doing so would affect the readability of the document given the extent of organizational and other changes.

The major revisions to the proposed CAO are to separate out the lengthy history of groundwater contamination with the compound PCE and the numerous affected supply wells in South Lake Tahoe as Appendix A. In addition, findings regarding the research of potentially responsible parties and the rationale for those named as dischargers in this CAO are now included in Appendix B. Specifically, this revised proposed CAO version differs from the original September 15, 2015, version in that it adds Bobby Page's, Inc. as another discharger.

Furthermore, the findings have been revised in the proposed CAO to include more recent monitoring data and results of an air sparge test at the facility, the results of the Water Board's January 2016 South Y PCE Investigation, and the results of a pump test at the Lukin's Well #4. These recent data and investigation results continue to support the Prosecution Team's contention that the Lake Tahoe Laundry Works facility is more likely than not the source of PCE detected in groundwater extending to the Tahoe Key Water Company's Well #2 and other supply wells, requiring the dischargers to conduct off-site investigations and clean-up actions. The Prosecution Team came to these conclusions, in part, after determining that other off-site properties were not PCE sources contributing to groundwater contamination. We, therefore, also recommend that the Water Board issue No Further Action letters (attached) to parties for the Lakeside Napa Auto Store and former Big O Tires Store in South Lake Tahoe.

Because of the CAO revisions discussed above, we suggest the Advisory Team allow a 30-day comment period for Bobby Page's Inc. on the entire CAO. We suggest a limited comment period for Fox Capital Management Corporation, Seven Springs Limited Partnership and the public on the addition of Bobby Pages' Inc. and on the more extensive off-site investigation and clean up requirements extending to the Tahoe Keys Water Company Well #2.

The Prosecution Team is available to answer any questions you may have on the attached documents.

Attachments: Revised Proposed Cleanup and Abatement Order
Responses to Comments on September 15, 2015 Proposed CAO
No Further Action Letter for Lakeside Napa Auto Store and Responses to Comments on 60-day Notice
No Further Action Letter for Former Big O Tire Store and Responses to Comments on 60-day Notice

CC: LTLW PCE Mail/Email List

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

REVISED CLEANUP AND ABATEMENT ORDER
NO. R6T-2016-PROP

REQUIRING SEVEN SPRINGS LIMITED PARTNERSHIP, FOX CAPITAL MANAGEMENT CORPORATION, AND BOBBY PAGES, INC.
TO
CLEAN UP AND ABATE THE EFFECTS OF THE DISCHARGE OF CHLORINATED HYDROCARBONS TO THE GROUNDWATERS OF THE LAKE TAHOEHYDROLOGIC UNIT AT THE FORMER LAKE TAHOE LAUNDRY WORKS LOCATED AT 1024 LAKE TAHOE BOULEVARD IN SOUTH LAKE TAHOE

_____El Dorado County_____

The California Regional Water Quality Control Board, Lahontan Region (Water Board), finds:

BACKGROUND

1. The former Lake Tahoe Laundry Works (hereinafter referred to as the Facility or Site) is located at 1024 Lake Tahoe Boulevard, South Lake Tahoe, El Dorado County (Assessor's Parcel Number 023-430-32-100). The Site is located on the northwest corner of an "L" shaped shopping center, approximately 9,000 feet south of Lake Tahoe and approximately 5,500 feet south of Tahoe Keys (Attachment 1). A laundromat operated at the Site from early 1970s to 2011 and since has been replaced by a new laundromat.

GROUNDWATER IMPACTS AND SUPPLY WELLS

2. Since 1989 when chlorinated hydrocarbons (e.g., solvents) were required to be tested in regulated water supply wells, compounds such as tetrachloroethene (PCE), trichloroethene (TCE), and dichloroethene (DCE) were detected in private and municipal supply wells[1] north and south of the South Y area of South Lake Tahoe, where Lake Tahoe Boulevard intersects with Emerald Bay Road. Many supply wells have since ceased operating due to PCE concentrations exceeding the drinking water standard of 5 micrograms per liter (µg/L). Such supply wells have included three South Tahoe Public Utility District (STPUD or District) wells in the 1990s and 2006, two Lukins Brothers Water Company wells in 1989 and 1990, a motel well, a mobile home park well, and private domestic wells. The STPUD installed wellhead treatment at the Clement Well in 1992 due to high PCE concentrations which peaked at 200 µg/L in 1996. This well has been inactive since 2001 due to MTBE contamination. PCE has been consistently detected in the Tahoe Keys Water Company (TKWC) Well #2 at concentrations greater than the 5

[1] This includes the South Tahoe Public Utility District's supply wells Clement, Julie, South Y, and Tata No. 4 wells and the Lukins Brothers Water Company #3 and #4 wells.

µg/L drinking water standard. After being down for three years to install wellhead treatment, the TKWC #2 well was restarted in 2012 and has operated during summers ever since. Appendix A provides a more detailed history of the affected supply wells.

3. Lukins Brothers Water Company and the TKWC have resorted to Mutual Aid and Assistance Agreements with the District due to the loss of water production resulting from the impairment of public water supply wells. Both water purveyors have tie-ins with the District water lines when emergency conditions require assistance in providing drinking water.

4. To investigate suspected solvent sources, the Water Board since the early 1990s has conducted its own soil gas and groundwater investigations (with the District) to identify possible solvent sources affecting water supply wells. The results of these investigations were able to narrow the focus of a potential PCE source to the south side of the South Y area. Appendix A provides a detailed history of investigations and results.

5. In the mid-1990s, the Water Board required site investigations at many properties in the western and southern areas of the South Y (Attachment 2). These properties included maintenance facilities, a gas station, automotive repair facilities, a metal shop, car dealerships, and the high school automotive shop. A 1999 investigation at the former Shell Station, located at 1020 Emerald Bay Road, detected PCE at concentrations exceeding the drinking water standard of 5 µg/L. This information indicated that PCE in groundwater extended to Emerald Bay Road. At two properties across from the Facility, the Lakeside Napa Auto Store and the Big O Tire Store #147, groundwater samples showed PCE in the thousands of parts per billion and breakdown products, TCE and DCE, all exceeding respective drinking water standards. None of these other investigations, however, identified sufficient amounts of solvents in soil that could have led to the concentrations historically and presently detected in the groundwater and water supply wells in the South Y area.

FACILITY INVESTIGATIONS

6. Starting in 2003, after being required through a series of Water Board Investigative Orders, five site investigations were conducted at the Facility between 2003 and 2008. Solvent contamination in soil was found mostly beneath the shopping center parking lot directly adjacent to the north side of the Facility and beneath the laundromat building. In the parking lot, soil contamination was detected up to 12 milligrams per kilograms (mg/kg) of PCE at 8 feet bgs (vadose zone) and to 0.33 mg/kg at 40 feet bgs (saturated zone). A soil gas investigation detected PCE, TCE, and DCE in soil gas at ten locations surrounding the north side of the building and in the parking lot. PCE in soil gas has been detected up to 7 parts per million by volume (ppmV). The presence of soil contamination and soil gas is indicative of a solvent source.

7. Investigations by the current landowner (Seven Springs Limited Partnership) and former landowner (Fox Capital) revealed that a coin-operated dry cleaning unit was located at the Site since at least 1972 until on or about 1979[2]. The coin-operated dry cleaning unit was connected via hose to a 30-50 gallon drum[3]. The drum was used for solvent storage and a pump was located on top of the drum to transfer solvents from the drum to the dry cleaning unit. The suspected source for this solvent release beneath the building is the self-service coin-operated dry cleaning machine in the laundromat. The suspected source for solvent release in the shopping center parking lot directly adjacent to the north of the Facility is believed to be the pump truck that periodically delivered solvents to the site via a hose from the truck to the indoor drum.

8. Groundwater investigations have collected water samples from both temporary and permanent sampling locations. The water table ranges from 5 to 18 feet below ground surface. Beginning in 2008 when on-site shallow monitoring wells were installed (Attachment 3), samples have historically detected PCE in groundwater up to 5,380 µg/L, TCE up to 74 µg/L, cis-1,2-DCE up to 339 µg/L, and 1,1-DCE at 7.7 µg/L. Such concentrations exceeded the primary drinking water standards for the respective constituents and demonstrated significant impairment to the drinking water aquifer and its designated beneficial uses.

9. The concentrations and extent of solvent compounds in groundwater correlate with the extent of both soil contamination in the northwest portion of the Site and soil gas beneath the building and parking lot which is more wide-spread. Prior to the start-up of remediation in 2010, the chlorinated hydrocarbon plume in groundwater at the Facility had a width of at least 375 feet between monitoring wells LW-MW-12 and LW-MW-13. Monitoring reports state the groundwater flow direction at the Facility is northerly.

10. On June 4, 2009, Fox Capital and Seven Springs Limited Partnership submitted the document, *Interim Remedial Action Workplan*, proposing an air sparge and soil vapor extraction (AS/SVE) system to remediate chlorinated hydrocarbons in soil and groundwater beneath the Facility (Attachment 4). The AS/SVE system began operating in spring 2010. The system was designed to remediate solvents for achieving cleanup goals to drinking water standards in the vadose zone and shallow aquifer zone. After start-up of remediation in 2010 to the end of 2013, the plume width in groundwater ranged from 375 feet to approximately 200 feet, as defined by monitoring wells LW-MW-12S and LW-MW-5S. Since the end of 2013, the plume width has ranged in size based upon operation or lack of operation of remedial actions at the Site.

[2] Id. at pp. 45-46.
[3] Deposition of Mary Louise Baisley, former operator starting in 1976, dated April 13, 2007, pp. 80-90.

11. Corrective actions prior to the date of this Order have been implemented by Fox Capital and Seven Springs Limited Partnership, in compliance with Water Board directives.

IDENTIFIED DISCHARGERS

12. The Prosecution Team took reasonable efforts to identify persons responsible for the discharge of PCE or the condition of pollution or nuisance associated with the discharge of PCE who would be liable for cleanup under Water Code section 13304. Water Code section 13304 obligates any person that has "caused or permitted" waste to be discharged that creates or threatens to create a condition of pollution to clean up the waste, abate the effects of the waste, or take other necessary remedial action. The key question in assigning responsibility for the cleanup and abatement of waste is whether the discharger caused or permitted the discharge.

13. The applicable evidentiary standard, in the first instance, to evaluate whether a discharger caused or permitted the discharge to waters of the state is the preponderance of the evidence standard.[4] Appendix B contains a more detailed analysis of the standard of proof for an administrative proceeding.

14. The State Water Resources Control Board (State Water Board) has held that "[a] landowner is ultimately responsible for the condition of his property, even if he is not involved in the day-to-day operations. If he knows of a discharge on his property and has sufficient control of the property to correct it, he should be subject to cleanup order under Water Code section 13304." (In the Matter of Arthur Spitzer, Order No. 89-8). The water boards have adjudicated numerous actions against prior landowners and have found those responsible if they owned or were in possession of the site, had the knowledge of the activities which resulted in the discharge, and had the legal ability to prevent the discharge. (WQ Order Nos. 85-7, 86-15, 91-7, 92-13, 84-6).

15. The coin operated drying cleaning unit used PCE as a cleaning solvent and remained operable at the Site from 1972 to on or about 1979/1980. During this time there were two prior landowners, Connolly Development, Inc. and Century Properties Equity Fund 73. Connolly Development, Inc., formed in 1966, purchased the property to develop the Site. Connolly Development, Inc. leased the Site

[4] Though Fox Capital articulates the relevant legal standard is the "substantial evidence" standard citing to Order No. WQ 85-7 *In the Matter of the Petition of Exxon Company, U.S.A., et al*, the Prosecution Team notes that this is the applicable standard *upon review by the State Water Board* and upon a petition for a writ of mandamus as discussed in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-515. Substantial evidence means "credible and reasonable evidence." Order No. WQ 93-14 *In the Matter of the Petition of Sanmina Corp.* Regardless of whether the substantial evidence or preponderance standard applies, the Prosecution Team demonstrates herein that the weight of the evidence indicates that it is more likely than not that the Dischargers named on this Order caused or permitted the discharges of waste to waters of the state.

starting on or around 1972 up until it sold the Site in 1974 to Century Properties Equity Fund 73. Century Properties Equity Fund 73 then leased the Site in September 1974[5] and later sold it on December 19, 1985. Seven Springs Limited Partnership is the current property owner of the Site.

During the relevant period (1972 through 1979/1980) the dry cleaning unit was at the Site, there were four operators. Robert and Berniece Prupas (dba as Bobby Page's, Inc.) leased the Site from Connolly Development, Inc. on or around October 11, 1972[6]. Bobby Page's Inc. leased the Site from Connolly Development in March 1973[7]. Kjell and Kerstin Hakansson subleased the Site from Bobby Page's Inc. on November 1973 to 1976[8]. Leroy and Mary Lou Baisley then became assignees of the Hakansson sublease with Bobby Page's Inc. from July 1976[9] to 1996.

16. This Order is being issued to Seven Springs Limited Partnership, Fox Capital Management Corporation, and Bobby Pages, Inc, collectively referred to as "Dischargers." The Prosecution Team chose not to issue this Order to Mrs. Hakansson or Mrs. Prupas[10]. Mr. Hakansson, Mr. Prupas, Mr. and Mrs. Baisley have all since passed and therefore are not being identified as dischargers. While Connolly Development, Inc. may be named as a Discharger due to its status as a prior landowner, after reasonable search efforts, the Prosecution Team has been unable to locate contact information for this entity for the purpose of providing it with notice and opportunity to be heard in this matter. Unless information comes to light identifying a contact, Connolly Development Inc. will not be named as a discharger in this Order. The Prosecution Team opines that based on the totality of circumstances, Century 73 did permit discharges of waste by virtue of having held an important legal interest in the property during the time that the self-service dry cleaning unit was in use by its tenants. The direct and circumstantial evidence along with reasonable inferences which can be deduced from the evidence support that more likely than not, Century 73 discharged and/or permitted the discharge of PCE because it was aware of the coin-operated machine that discharged PCE to groundwater during Century 73's ownership and Century 73 had sufficient control over the Site to prevent and/or minimize the discharge of VOCs to groundwater. As Century 73's general partner, Fox Capital Management Corporation is named as a discharger in this Order. Bobby Pages, Inc. is a named discharger where it was the operator and/or lessee for the duration of when the coin-operated dry cleaning unit was on-site and where PCE in soil and groundwater was detected at orders of magnitude greater than other areas on site. A specific analysis of the Prosecution Team's rationale for naming these Dischargers is incorporated herein by reference in Appendix B.

[5] Fox Comments on Proposed Order, Exhibit C.
[6] Deposition of Mary Louise Baisley dated April 13, 2007, Exhibit 6.
[7] Deposition of Mary Louise Baisley dated April 13, 2007, Exhibit 5.
[8] Deposition of Mary Louise Baisley dated April 13, 2007, Exhibit 6.
[9] Deposition of Mary Louise Baisley dated April 13, 2007, Exhibit 7.
[10] After an initial investigation the Prosecution Team determined that these individuals have little to no assets other than their primary residence.

NEED FOR THIS ORDER - FACILITY MONITORING RESULTS

17. Under orders of the Water Board, Seven Springs and Fox Capitol completed five site investigations between 2003 and 2008. Significant levels of solvent compounds were detected in soil and groundwater in the area of the former dry cleaning machine and in the parking lot in front of the business. Appendix A provides a more detailed history of these investigations, the results, and the subsequent remedial actions.

18. Starting in 2010, Seven Springs and Fox Capitol began operating an air sparge and soil vapor extraction (AS/SVE) system to remediate contamination on site. Air sparging implemented in the saturated zone strips volatile organic compounds from groundwater. A vacuum applied to the unsaturated zone removes the soil gas vapors that accumulate beneath the building foundation and paved parking lot. Clean up progress and groundwater monitoring results are submitted in quarterly monitoring reports.

19. Solvent contamination continues to be detected in soil gas and groundwater on-site. The Third Quarter 2015 Groundwater Monitoring Report provides the results of site-wide sampling in September 2015. The Report shows PCE detected in monitoring wells on and off the Facility property as well as in soil gas locations. The highest reported concentrations are as follows:

Table 1. Highest On-Site PCE Concentrations, Third Quarter 2015

Well Number	Screen Interval (feet)	Sample Matrix	PCE Concentration
LW-MW-1S	8.9--24	Water	150 µg/L
VP-9	4.875--5	Soil gas	450 ppbV*

*parts per billion by volume

PCE concentrations have improved due to the operation of the AS/SVE system, however, soil gas data indicate solvents remain in soil beneath the Site at concentrations that continue to pollute groundwater. As long as the soil remains contaminated, an ongoing threat of discharge to groundwater and the drinking water aquifer continues.

20. Recent water quality monitoring results from private domestic wells, off-site monitoring wells, and off-site municipal wells in the general downgradient groundwater flow direction of the Site have detected PCE concentrations. Given the lack of other significant PCE sources[11] in the South Y area, it is reasonable for

[11] See Appendix to this CAO titled "Elimination of Other Sources of Solvent Contamination"

Water Board staff to assume these PCE detections at off-site locations are from the Dischargers' historical solvent discharges[12]. PCE concentrations of 64 µg/L detected at OS-1 during first quarter 2015 were the highest levels in five years at that location and suggest remedial actions (AS/SVE) are not sufficient to fully contain the groundwater plume on-site as originally designed[13]. Below is a table capturing the most recent water quality monitoring results from off-site locations (Attachment 5).

Table. 2 Recent Water Results for Off-site Locations

Location	**Sample Date**	**Well Type**	**Screen Interval (feet)**	**PCE Concentra-tion (**µg/L)	**Location Relative to LTLW***
883 Eloise Avenue	8/27/14	Domestic	40-70	52	1,950 feet N8ºW of the Facility
903 Eloise Avenue[14].	1/27/15	Domestic	40-70	8.4	1,930 feet N8ºW of the Facility
OS-1 (LTLW)	9/2015	Monitoring	10-25	9.6	730 feet N22ºE of the Facility
Hurzel Monitoring Well	8/25/14 8/21/15	Monitoring	9-24	80 85	780 feet N18ºE of the Facility
MW-4A	10/30/15	Monitoring	15-25	14	1,470 feet N6ºE of the Facility
MW-4B	10/30/15	Monitoring	35-50	150	1,470 feet N6ºE of the Facility
Lukins Well #4	6/30/15	Municipal	8-106 Open hole to 133	34	2,930 feet N8ºW of the Facility
TKWC** Well #2	7/28-31/15	Municipal	158-433	22 µg/L	5,820 feet N13ºW of the Facility

*Lake Tahoe Laundry Works
**Tahoe Keys Water Company

21. Groundwater investigation and monitoring reports submitted since 2008 have shown the direction of groundwater flow ranging from N15ºW to N25ºE from the Facility. This 40 degree range affecting flow direction reflects seasonal and drought/wet groundwater conditions. The location of PCE-affected wells listed in Table 2 are within the range of groundwater flow from the Site.

22. Principles of hydrogeology and contaminant transport properties[16] show that dissolved hydrocarbon plumes typically expand in width with distance from the source. This physical phenomenon is due to dispersion which causes the dissolved contaminant to deviate from the average groundwater path. The unconfined

[12] See Appendix to this CAO titled "Water Quality Monitoring Results"
[13] See Appendix to this CAO titled "Remediation Efforts"
[16] 1979, Freeze and Cherry, Chapter 9, p. 383-462.

shallow aquifer in the South Y area contains various soil materials, including gravelly sand to silty fine sands, silt and clay. These differing materials can have a substantial effect on groundwater flow paths and the dispersion of PCE through the aquifer. As the plume at the Facility migrates over time with groundwater flow over the 40 degree range of direction, the plume could reach a width of 1,550 feet on Eloise Avenue between the intersections with 7th Street in the west and Dunlap Street in the east because of dispersion. Such calculation is based on past PCE detections (2003 and before) shown on Attachment 2 and recent PCE detections in domestic wells at 883 and 903 Eloise Avenue (Table 2), and historical PCE detections in domestic wells at 2111 Dunlap Drive and 941 and 861 Emerald Bay Road, a municipal well at 915 James Avenue, and in monitoring wells at 913 and 960 Emerald Bay Road.

23. Information contained in a recent study conducted by the District suggests that the PCE plume extends at least to Emerald Bay Road. In June 2016, the District released a "Final Report for the South Y Extraction Well Suitability Investigation (Final Report)"for the Lukins Well #4, located on the east end of Hazel Avenue. The Final Report states that up to 39 µg/L PCE was detected in the Lukins #4 well under no pumping conditions and up to 55 µg/L PCE was detected under pumping conditions at 170 gpm. Under each condition, PCE concentrations increased with depth to 107ft. The results under the no pumping scenario means the PCE source is in the upgradient groundwater flow direction towards the south. Figure 4-1, titled "Capture Zone Analysis Results" shows the capture zone from Lukins #4 under different pumping rates; at 200 gpm, PCE in groundwater is captured on the north side of Emerald Bay Road between 9th and 6th Streets and at 400 gpm PCE is captured out to the south side of Emerald Bay Road and almost includes the location of the Facility.

24. There are no pumping wells that currently exist between these locations and the Facility (a distance of nearly 2,000 feet) to abate or alter plume migration. PCE detection in 2014 and 2015 at the two Eloise domestic wells correspond with PCE concentrations reported in the thousands of parts per billion at the Facility in 2011 and 2012 and the length of time for contaminants to migrate with groundwater for nearly 2,000 feet distance[17]. PCE data collected at all off-site locations[18] (domestic wells and monitoring wells in Table 2) downgradient of the LTLW Site in 2014 and 2015 point to a much larger plume in groundwater affecting the drinking water aquifer and justifying the need for off-site corrective actions and additional on-site corrective actions.

[17] Based on an average groundwater flow rate of 1.5 feet/day (AppendixA)

[18] OS-1, Hurzel monitoring well, 883 and 903 Eloise Avenue, Lukins #4, TKWC #2, MW-4A/B

AFFECTED BENEFICIAL USES

25. The beneficial uses of groundwater in the area as designated in the 1995 Water Quality Control Plan for the Lahontan Region (Basin Plan) include municipal and domestic supply, agricultural supply, and industrial service supply.

26. The discharge of chlorinated hydrocarbons to the groundwater of the Lake Tahoe Hydrologic unit violates prohibitions contained in the Basin Plan. Specifically, the discharge violates the regionwide prohibition and the specific discharge prohibition for the Lake Tahoe Hydrologic Unit:

    i. Regionwide Prohibition: "The discharge of waste which causes a violation of any numeric water quality objective contained in this Plan is prohibited."

    ii. Discharge Prohibition for the Lake Tahoe Hydrologic Unit: "The discharge of waste…as defined in section 13050(d) of the California Water Code which would violate the water quality objectives of this plan, or otherwise adversely affect the beneficial uses of water designated by this plan, is prohibited."

27. The Basin Plan establishes water quality objectives for the protection of both existing and potential beneficial uses. Groundwater designated as MUN shall not contain concentrations of chemical constituents in excess of Maximum Contaminant Levels (MCLs)) established by the California Department of Public Health as safe levels to protect public drinking water supplies. Below are the MCLs for chemical constituents of concern for this matter:

PCE	5 µg/L (MCL)
TCE	5 µg/L (MCL)
Cis-1,2-DCE	6 µg/L (MCL)
1,1-DCE	6 µg/L (MCL)

28. The historical and recent concentrations of PCE, TCE, and DCE detected in groundwater samples taken from monitoring wells on and off the Facility exceed water quality objectives for the groundwater specified in the Basin Plan. Many water supply wells have since ceased operating, including those operated by the South Tahoe Public Utilities District, the Lukins Brothers Well Company, a motel well, a mobile home park well, and private domestic wells, due to PCE concentrations exceeding drinking water standards. Wellhead treatment has since been installed by the water purveyors at Clement Well and TKWC Well #2. Off-site PCE concentrations adversely affect the existing and potential beneficial uses of groundwater as designated in the Basin Plan, warranting additional corrective actions as required in this Order.

LEGAL REQUIREMENTS - AUTHORITY

29. This Order conforms to, and implements policies and requirements of, the Porter-Cologne Water Quality Control Act (Division 7, commencing with Water Code section 13000) including: (1) Water Code sections 13267 and 13304; (2) applicable state and federal regulations; (3) all applicable provisions of Statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Board) and the Water Quality Control Plan for the Lake Tahoe Basin, (Basin Plan) adopted by the Water Board; (4) State Board policies and regulations, including State Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California), and Resolution No. 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code section 13304) ("Resolution 92-49"); CCR Title 23, Section 3890 et. seq., and (5) relevant standards, criteria, and advisories adopted by other state and federal agencies.

30. Water Code section 13304 is silent regarding the relevant burden of proof, however, the water boards will typically look to the California Evidence Code for guidance. Specifically, Evidence Code section 115 states in part, "Except as otherwise provided by law, the burden of proof requires proof by a preponderance of the evidence." The "preponderance of the evidence" standard usually means "that one body of evidence has more convincing force than the evidence opposed to it."[19] Said a different way, this standard of proof is "more likely than not."[20]

31. California Water Code (Water Code) section 13304, subdivision (a) states in part:

    i. *Any person…who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is…discharged into 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…*

32. Pursuant to Water Code section 13304, subdivision (f):

    ii. *Replacement water provided pursuant to subdivision (a) shall meet all applicable federal, state, and local drinking water standards, and shall have comparable quality to that pumped by the public water system or private well owner prior to the discharge of waste.*

33. California Water Code section 13267, subdivision (b) states in part:

[19] Cal. Admin. Hearing Practice, 2d Ed., § 7.51 [internal citations omitted].
[20] See *People v. Superior Court* (2013) 215 Cal.App.4th 1279, 1305, footnote 28.

> *In conducting an investigation [of the quality of any waters of the state within its region] the regional board may require any person who has discharged waste within its region…[to] 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.*

Water Code section 13267, subdivision (b) authorizes the Water Board to require technical and monitoring reports to investigate the quality of waters of the state within its region. The technical and monitoring reports required by this Order are necessary to ensure the cleanup and abatement of hydrocarbons in groundwater pollution at and downgradient of the Facility. As part of the investigation into the quality of groundwater within the Lake Tahoe Hydrologic Unit, the Water Board is requiring the Dischargers to produce a report to address the containment of the hydrocarbon plume on-site and a report that evaluates the lateral and vertical extent of the plume that has migrated off-site. The Dischargers are also required to provide the Water Board with a corrective action plan that describes the off-site area to be remediated and the necessary methods and remediation technology to achieve the restoration of groundwater to levels that meet primary maximum contaminant levels for drinking water. Every quarter, the Dischargers will be required to conduct groundwater sampling and submit a technical report describing the groundwater monitoring results. All of the reports required by this Order are necessary for the investigation of water quality to effectively reduce solvent compounds and restore the drinking water aquifer for beneficial uses.

34. Pursuant to Water Code section 13304, the Water Board is entitled to, and may seek, reimbursement for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of wastes or to oversee cleanup of waste, abatement of the effect thereof, or other remedial action pursuant to this Order.

35. The Dischargers are required to clean up and abate the effects of historical discharges and to address the remaining threat of discharge to water quality of chlorinated hydrocarbons in accordance with Water Code section 13304. Specifically, solvent contamination in the soil from the Facility continues to discharge to groundwater despite current remediation efforts.

    The level of wastes in groundwater at the Facility constitute a pollution as defined in Water Code section 13050, subdivision (l); Pollution means an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (a) the waters for beneficial uses; or (b) facilities which serve these beneficial uses. There is a long and established history of public water supply wells used for drinking water production located in and around the South Y Area (Appendix A). Many of these wells are either inactive or have been destroyed

mostly due to impairment by PCE groundwater contaminant plumes. Supplemental corrective actions are required off site to protect public health and restore the drinking water aquifer through this area for municipal and domestic supply.

The AS/SVE system has operated for approximately six years, except for nine months of downtime in 2013. On-site soil gas data and off-site monitoring well data indicate solvent compounds still exist in soil beneath the Facility at concentrations affecting water quality. The Prosecution Team's May 24, 2016 comment letter on the January 2016 AS/SVE performance test conducted by the Dischargers' consultant confirms that complete remedial coverage at the Site is lacking, leading to inconsistent and inadequate clean up across the Site allowing contaminants to migrate off-site in groundwater.[21] The extent of soil contamination remaining above and below the water table is unknown and requires further investigation. Thus, supplemental remedial actions to those in the Remedial Action Plan are needed to contain the solvent plume on site and clean up detected compounds to background conditions. Current cleanup actions at the Facility are not sufficiently containing the plume in groundwater from migrating to off-site locations. Recent off-site domestic well and monitoring well data indicate that the solvent plume in groundwater from the Facility is longer and wider than originally identified in the August 2010 Remedial Action Plan. The presence of PCE in Lukins Brothers Water Company Well #4 on Hazel Drive and TKWC Well #2 on Venice Drive suggests that, if the Site is the source of pollution at these locations, the leading edge of the contaminant plume is located northwest of 883 and 903 Eloise Avenue and may extend to the Tahoe Keys. Off-site investigation is needed to define the PCE plume leading edge and thickness in groundwater and determine if impacts, such as those when the remediation system was off during 2013, are reaching these municipal wells. Remedial actions should contain the leading plume edge from future migration and clean up solvent concentrations within the off-site plume. These actions will necessitate installation and operation of an off-site remedial system(s).

36. This new Order requires the Dischargers to conduct supplemental corrective actions to (1) contain plume migration on-site confirmed by additional monitoring locations, (2) conduct off-site investigations to define the lateral and vertical extent of solvents in groundwater, (3) actively clean up and abate on-site soil, soil gas, and groundwater contamination, (4) propose and implement off-site groundwater containment and remediation so as to prevent further adverse impacts to water supply wells and other receptors, (5) install additional monitoring wells, and (6) conduct related monitoring and reporting actions. These actions are needed to protect public health and restore the drinking water aquifer for existing and potential beneficial uses.
37. 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) (Pubic Resources Code section 21000 et seq.) in accordance with California Code of Regulations, title 14, sections 15061(b)(3), 15306, 15307, 15308, and 15321.

[21] Comments on Air Sparge Performance Test, Lake Tahoe Laundry Works, dated May 24, 2016.

This Order generally requires the Dischargers to continue to implement previously approved work plans and to submit an additional work plan proposing a remedial method for containing chlorinated hydrocarbons from migration in groundwater from leaving the Facility. CEQA review at this time would be premature and speculative, as there is simply not enough information concerning the Dischargers' supplemental corrective actions and possible associated environmental impacts. If the Water Board determines that implementation of any plan required by this Order will have a significant effect on the environment, the Water Board will conduct the necessary and appropriate environmental review prior to Executive Officer's approval of the applicable plan. The Dischargers will bear the costs, including the Water Board's costs of determining whether implementation of any plan required by this Order will have a significant effect on the environment and, if so, in preparing and handing any documents necessary for environmental review. If necessary, the Dischargers and a consultant acceptable to the Water Board shall enter into a memorandum of understanding with the Water Board regarding such costs prior to undertaking any environmental review.

ORDERS

THEREFORE, IT IS HEREBY ORDERED that pursuant to Water Code sections 13267 and 13304, Seven Springs Limited Partnership, Fox Capital Management Corporation, and Bobby Page's Inc. (referred to hereafter as the "Dischargers") shall clean up and abate the discharge and threatened discharge of chlorinated hydrocarbons to waters of the state, and shall comply with the provisions of this Order:

1. Current Corrective Actions: The Dischargers shall continuously implement current corrective actions at the Facility in accordance with previously accepted workplans and proposals, including the Remedial Action Plan submitted to the Water Board on August 12, 2010, monitoring programs, or as modified with the Water Board's Executive Officer's or Assistant Executive Officer's approval. "Continuous" is defined as 90 percent of the time or more. Corrective actions can include the operation and/or cycling of the SVE/AS system and/or ozone sparge system.

    1.1. The Dischargers shall notify the Water Board **within 72 hours** from discovery when remediation ceases at the Site for 15 days or more. Written notification must describe: when downtime occurred or was discovered, cause or reason for downtime, action planned to correct problem, and expected timeframe to resume remediation.

    1.2. In addition to existing and on-going monitoring requirements, the Dischargers shall conduct groundwater sampling at all monitoring well locations and impacted supply wells associated with the Facility, as follows:

        1.2.1. Collect water table elevation data at each monitoring well location.

1.2.2. Water samples must include analyses for VOC using EPA Method 8260B with a detection level of 0.5 µg/L.

1.2.3. To the extent that new monitoring wells are installed for the Site, they shall be added to the monitoring program and sampled and reported quarterly.

2. On-Site Plume Containment

2.1. **Within 30 days** of the effective date of this Order, submit a workplan proposing an alternate method, other than the AS/SVE or ozone sparge system currently in use, to contain the migration of chlorinated hydrocarbons in groundwater within the Facility property. Include a time schedule for implementing the containment option that can comply with the deadlines listed below.

2.1.1. Preliminary Boundary Containment Monitoring: The workplan shall propose an off-site monitoring program that has the ability to fully evaluate chlorinated hydrocarbon data in all affected groundwater *between the Facility and domestic wells on Eloise Avenue, before and after implementing the containment measures in Order No. 3.1. The purpose of the monitoring program is to gather baseline data prior to implementation of the containment method and should be able to evaluate the effectiveness of the containment method after implementation.

2.2. Implement Preliminary Containment: In accordance with an accepted workplan and implementation schedule, the Dischargers shall implement a monitoring program and remedial method that has the ability to evaluate and contain, respectively, chlorinated hydrocarbons in groundwater from leaving the Facility property. The containment method must operate continuously, defined as 90 percent of the time or more, on a monthly basis, unless prior approval is received by the Water Board Executive Officer.

2.2.1. **Within six months** from the date of this Order, achieve containment of chlorinated hydrocarbons in groundwater from leaving the Facility property. If data indicates hydrocarbons are not contained, it will be a violation of this Requirement.

2.2.2. **Within seven months** from the date of this Order, submit a technical report to the Water Board with data and information sufficient to demonstrate containment of the chlorinated hydrocarbons in groundwater from leaving the Facility property. Information shall include operations data, such as system run and down times, injection pressures, and flow rates. Local groundwater elevations from on- and off-site locations and potentiometric maps showing groundwater flow directions and calculated

hydraulic gradients during operation are required to insure that the system is being operated in an appropriate manner.

2.2.3. Cease Discharging Off-Site: The Discharger shall not discharge chlorinated hydrocarbons off-site or allow groundwater containing chlorinated hydrocarbons from migrating to off-site locations within 30 days after achieving containment as required by Order No. 2.1.

3. Off-Site Investigation

Within 75 days of the date of this Order, submit a workplan to the Water Board that is designed to determine the full lateral and vertical extent of off-site chlorinated hydrocarbons in groundwater from the Facility property line in the northly direction to Venice Drive. The off-site investigation shall be able to define the extent of PCE contamination at depths consistent with the perforated intervals of all current and past affected public and private water supply wells. The workplan must propose collecting multi-depth samples or propose another suitable method to define the lateral and vertical extent of contamination out to 1 µg/L. The investigation must be designed in a manner to collect geologic information to the full depth of sampling but which does not promote the vertical migration of contaminants to lower portions of the aquifer. Furthermore, the investigation shall propose to collect samples from known affected municipal and private supply wells or use data recently collected. Describe process for gaining access to off-site locations and alternate plans if access is not allowed. All maps must be drawn to scale, color coded, show the Facility and proposed sampling locations, and other relevant features, such as roads, supply wells, etc.

3.1. **Within 30 days** of workplan acceptance by Water Board staff, implement the Site investigation for determining the extent of off-site contamination in groundwater. Notify the Water Board within three working day of implementing the investigation.

3.2. **Within 105 days** of workplan acceptance by Water Board staff, submit a technical report to the Water Board that describes the groundwater investigation conducted in accordance with the accepted workplan. As the Facility is the only known chlorinated hydrocarbon source in the South “Y” area, assume all detections are associated with the Facility unless the Dischargers can provide evidence to show otherwise. At a minimum, the report must:

3.2.1. Provide a narrative description of work performed and information obtained.

3.2.2. Include boring logs, monitoring well designs (if constructed), and analytical data.

3.2.3. Include site maps showing the location of all borings and sampling points (temporary and permanent) and results. All figures must be drawn to scale, be in color, and label relevant features, such as roads, supply well locations, etc.

3.2.4. Include an isoconcentration map showing all sampling locations and data points with boundary lines of chlorinated hydrocarbons in groundwater drawn out to 1 µg/L from the Facility. Question marks shall indicate areas where boundaries are unknown. Show the layout of the sanitary sewer and the most recent municipal/private water supply well results on these maps.

3.2.5. Describe the geology at off-site sampling locations. Iinclude geologic cross sections from the Facility to the extent of groundwater sampling and show detected solvent compounds.

3.2.6. List the depth of first encountered groundwater at all points sampled. State whether perched zones were encountered and the basis for this finding. Describe whether or not the contaminants are following preferential pathways and the basis for that conclusion. For instance, describe if there is a pattern of distribution of chlorinated hydrocarbons in groundwater compared to the layout of the sanitary sewer.

3.2.7. Describe the full lateral and vertical extent of chlorinated hydrocarbons to 1 µg/L, including the depth of contamination from the Facility to off-site locations and supply wells currently or previously having impacts. State where, if any, the lateral and vertical extent of contamination to groundwater is unknown.

3.2.8. Describe in text and show in figures a site conceptual model (SCM) that identifies potential preferential flow paths due to the fluvial depositional environment and describes the different aquifer zones from which the various affected supply wells produce water. Also describe the different vertical zones from which supply wells produce groundwater that show contamination to 1 µg/L.

3.2.9. If the full lateral and vertical extent of chlorinated hydrocarbons in groundwater is not defined out to 1 µg/L from the Facility, provide a workplan and schedule proposing a supplemental investigation.

4.0 Off-Site Corrective Action Plan (CAP)

Within 60 days of the due date of the technical report for groundwater investigation that defines the extent of chlorinated hydrocarbons in groundwater, submit an off-site CAP to the Water Board to clean up and abate off-site impacts to groundwater from discharges at the Facility, and propose off-site

plume containment to prevent impacts to domestic and municipal supply wells. The off-site CAP shall describe at least three cost-effective remediation technologies to restore groundwater to State of California primary Maximum Contaminant Levels for drinking water. Include, at a minimum, the following information:

4.1.1 Summarize the extent of groundwater contamination caused from releases at the Facility.

4.1.2. Provide a map showing the boundary of groundwater contamination out to 1 µg/L for chlorinated hydrocarbons. Question marks shall be used to indicate unknown boundaries.

4.1.3. Describe the geology beneath the Facility and at all off-site areas requiring remediation. Include geologic cross-sections to show the depth to the water table and the lateral and vertical extent of chlorinated hydrocarbons.

4.1.4 Propose off-site plume containment to prevent future impacts to domestic and municipal supply wells.

4.1.5. Describe necessary equipment, materials and methods, implementation schedule, and permits required to implement each of the three technologies.

4.1.6 Estimate the cleanup time to achieve drinking water standards for each of the three technologies and the basis for the estimation.

4.1.7 State the recommended remediation technology to implement for abating off-site groundwater contamination. Describe an estimate time frame for designing, permitting, constructing, and initial operation of the recommended technology.

4.1.8. All figures shall be to scale, be in color, and label relevant features, such as roads, supply wells, etc.

5.0. Groundwater Monitoring and Reporting

Within **24 hours of due dates**, the Dischargers shall upload all technical documents, such as workplans, reports, letters, etc., to the State Water Resources Control Board's Geotracker database at: http://geotracker.waterboards.ca.gov/. Uploaded documents shall include figures and appendices, when applicable.

5.1**. By July 30, 2016, and quarterly thereafter,** conduct groundwater sampling at all existing monitoring well locations associated with the Facility (Attachment 3), including monitoring wells installed deeper in the aquifer. Water samples must include analyses for VOC using EPA Method 8260B with

a detection level of 0.5 µg/L. Collect water table elevation data at each well location. New monitoring wells installed after the issuance of this CAO shall be added to the monitoring program, sampled and reported quarterly.

5.2. **By September 15, 2015, and quarterly thereafter**, submit a digital technical report (no more hard copies) to the Water Board describing groundwater monitoring and remediation results for the prior quarter. The report must contain the following information:

5.2.1 Either a table of contents or an attachment list.

5.2.2. Laboratory analytical results of water samples using EPA Method 8260B or its equivalent for volatile organic compounds. Detection limits shall be no greater than 0.5 µg/L for volatile organic compounds.

5.2.3 A narrative description and analysis of all information provided.

5.2.4. Potentiometric surface map for groundwater elevations in all monitoring wells. Show the ground water flow direction as an arrow on the map with the calculated horizontal hydraulic gradient.

5.2.5. Maps showing the location of all on-site and off-site monitoring wells together and the most recent sampling result. Include isoconcentration lines on maps of the dissolved chlorinated hydrocarbon plume out to 5 µg/L, 50 µg/L, and 500 µg/L for PCE, TCE, and DCE. Plume lines at on-site monitoring well locations shall extend to the most recent comparable solvent concentrations at off-site locations.

5.2.6 Tabulate water analytical results and groundwater elevations for each well over time.

5.2.7. Description of groundwater elevation trend from previous monitoring events.

5.2.8. Discussion of contaminant concentration trend in monitoring wells from previous monitoring events.

5.2.9. Description of all remedial actions taken in the past quarter. Discuss operational data, such as rates, flow volume, laboratory data, etc. Discuss and explain all equipment downtimes.

5.2.10. Discussion of whether the dissolved chlorinated hydrocarbon plume is migrating, stable or reducing in size and concentration. Describe the basis for all conclusions.

5.2.11. Submittal of laboratory analytical data, groundwater information, and monitoring well locations in Electronic Data Format to the State Water Resources Control Board Geotracker Database.

5.2.12. Identification of corrective actions planned during the next quarterly reporting period.

5.2.13. All figures shall be in color.

5.2.14. Table 4B, *Historical Shallow Soil Gas Analytical Data—Other VOCs* is no longer needed in reports.

6. Chlorinated Hydrocarbon Plume Definition

6.1. **<u>By January 30, 2017</u>**, submit a workplan proposing the following monitoring wells:

6.1.1. Additional locations along Lake Tahoe Boulevard to reduce gaps between current monitoring wells.
6.1.2. Deeper on-site locations to monitor and evaluate effectiveness of clean-up actions of the aquifer.
6.1.3. Multi-depths at all off-site locations where chlorinated hydrocarbons attributed to the facility were detected to 1 μg/L.
6.1.4. Describe process for gaining access to off-site locations and alternate plans if access is not allowed.
6.1.5. Proposed well designs.
6.1.6. Maps drawn to scale, be in color, and label relevant features, such as roads, supply well locations, etc., and showing proposed well locations.

6.2 Unless otherwise ordered, all monitoring wells required by the Water Board shall be installed, developed, and sampled **within 6 months of the date of workplan approval**.

6.3. All monitoring wells installed under requirements in this Order shall be added to the Groundwater Monitoring and Reporting Program (MRP) (see Requirement VIII, Attachment 8) upon the first sampling event. Monitoring well designs and boring logs shall be included as attachments in quarterly groundwater monitoring reports. All new wells shall be sampled at a **quarterly frequency.**

7. Any modification to this CAO shall be in writing and approved by the Executive Officer, including any potential deadline extensions. Any written extension request by the Dischargers shall include justification for the delay. If no modification to the CAO follows, the Dischargers must comply with deadlines as originally stated in this Order.

General Provisions

8. Plan Approval and Implementation

   All plans required by this Order require the Water Board's approval, and shall be incorporated and implemented as part of this Order whether expressly stated above or not. Any violation of an approved plan required by this Order shall be considered a violation of this Order. The Executive Officer is hereby delegated the authority to approve, conditionally approve, or reject plans submitted in accordance with this Order.

9. Laboratory Analysis

   All water sample analyses shall utilize the most recent testing methods. Testing for volatile organic compounds analysis shall be done using United State Environmental Protection Agency (US EPA) Method 8260B to a reporting limit of 0.5 ppb. A part per billion is equivalent to micrograms per liter or µg/L, also reported by laboratories. The laboratory used shall be certified by the California Environmental Laboratory Accreditation Program (ELAP). If best available technology in the future allows for better testing methods adopted by the State of California or lower detection levels, the Dischargers shall implement the better method or detection level.

10. Certifications for all Plans and Reports

    All technical and monitoring plans and reports required in conjunction with this Order are required pursuant to Water Code section 13267 and shall include a statement by the Dischargers, or an authorized representative of the Dischargers, certifying under penalty of perjury in conformance with the laws of the State of California that the workplan and/or report is true, complete, and accurate. Hydrogeologic reports and engineered plans shall be prepared or directly supervised by, and signed and stamped by a Professional Geologist or Civil Engineer, respectively, registered in California. It is expected that all interpretations and conclusions of data in these documents to be truthful, supported with evidence, with no attempts to mislead by false statements, exaggerations, deceptive presentation, or failure to include essential information.

    All reports, workplans, etc., shall be submitted in digital form to the South Lake Tahoe office of the Lahontan Regional Water Quality Control Board and El Dorado County Department of Environmental Management:

    Lisa Dernbach (lisa.dernbach@waterboards.ca.gov)
    Lahontan RWQCB
    2501 Lake Tahoe Blvd.
    South Lake Tahoe, CA 96150

Karen Bender (Karen.bender@edcgov.us)
EDC Environmental Management
3368 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

11. Liability for Oversight Costs Incurred by the Water Board

The Dischargers shall be liable, pursuant to Water Code 13304, to the Water Board for all reasonable costs incurred by the Water Board to investigate unauthorized discharges of waste, or to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, pursuant to this Order. The Dischargers shall reimburse the Water Board for all reasonable costs associated with site investigation, oversight, and cleanup. Failure to pay any invoice for the Water Board's investigation and oversight costs within the time stated in the invoice (or within thirty days after the date of invoice, if the invoice does not set forth a due date) shall be considered a violation of this Order. If this Site is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program.

12. No Limitation of Water Board Authority

This Order in no way limits the authority of this Water Board to institute additional enforcement actions or to require additional investigation and cleanup of the Site consistent with the Water Code. This Order may be revised by the Executive Officer as additional information becomes available.

13. Enforcement

Failure to comply with the requirements, terms, or conditions of this Order will result in additional enforcement action that may include the imposition of administrative civil liability pursuant to California Water Code sections 13268 and 13350, or referral to the Attorney General of the State of California for civil liability or injunctive relief. The Water Board reserves its rights to take any enforcement action authorized by law.

14. Permits or Approvals

This Order does not alleviate the responsibility of the Dischargers to obtain necessary local, state, and/or federal permits to construct or operate facilities or take actions necessary for compliance with this Order. This Order does not prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.

15. Replacement of Prior Orders

This Order replaces all requirements of Investigative Orders R6T-2013-0064 and R6T-2013-0090. This Order shall not preclude enforcement against the Dischargers for failure to comply with any requirement in any other Order issued by the Water Board. The Water Board reserves its rights to take any enforcement action authorized by law.

16. Right to Petition

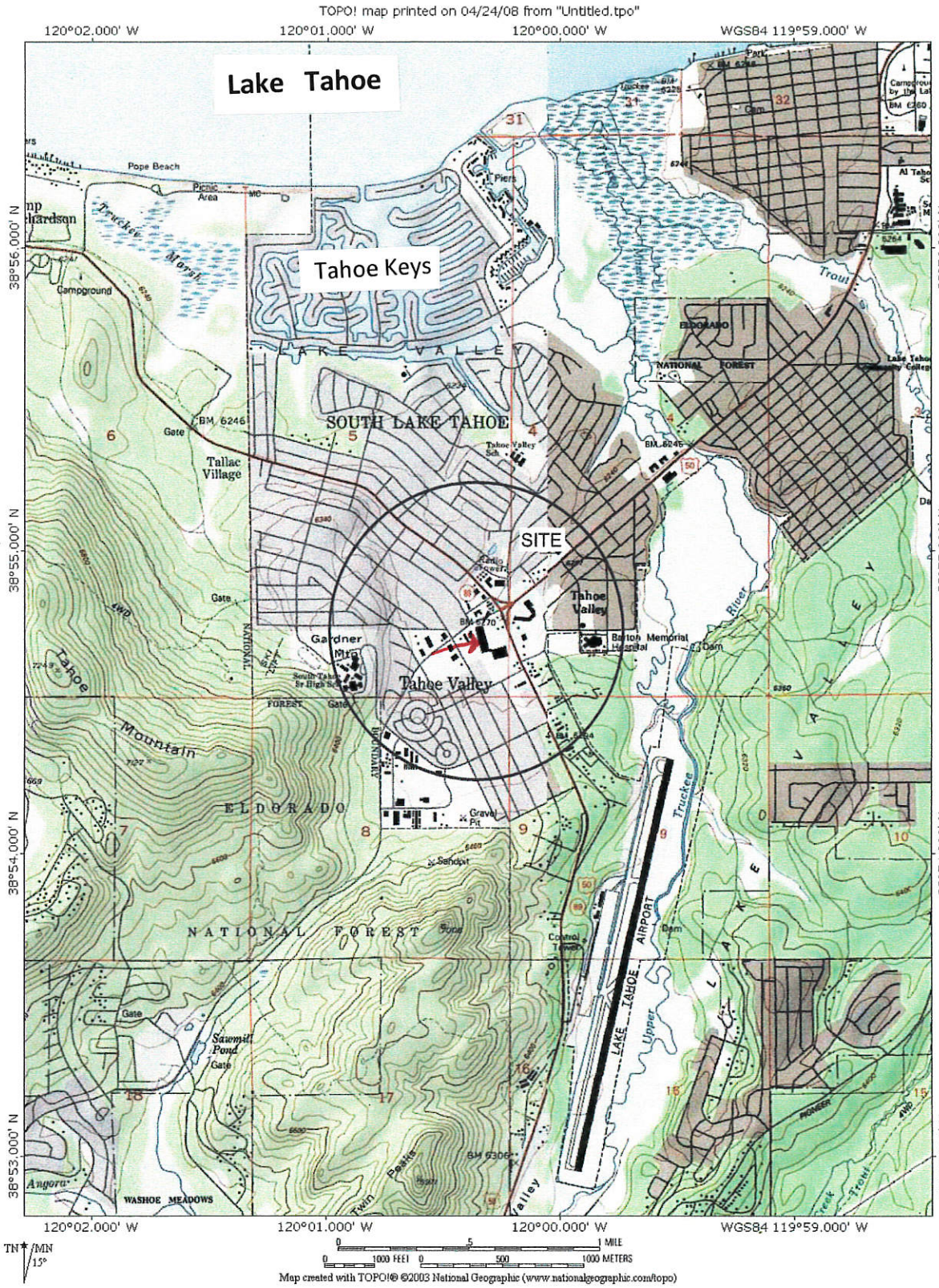
Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board shall receive the petition by 5:00 p.m., 30 days after the date this Order is issued, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition shall be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Ordered by:_____ Dated:_____
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachments: 1. Site Map
2. Map of PCE Investigation Results on Other Properties
3. Map of LTLW Monitoring Well Locations
4. Map of LTLW Shallow Soil Vapor Well Data, First Quarter 2015
5. Map of Recent PCE Detections at Off-site Properties

Appendix A: Chronology of Groundwater Impacts and Supply Wells

Appendix B: Identifying Dischargers

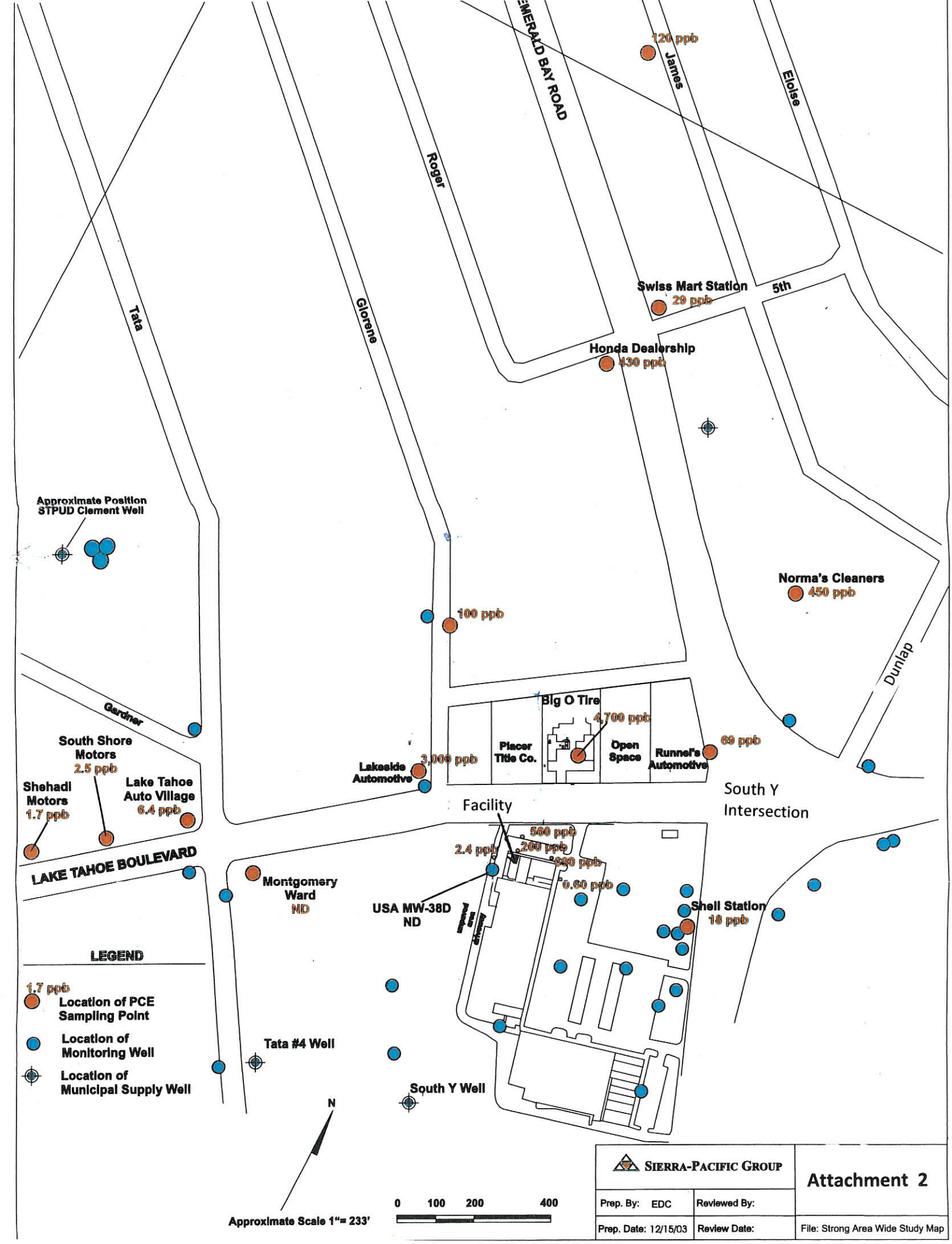


Environmental Engineering, Consulting & Remediation, Inc.
1020 Winding Creek Rd., #110, Roseville, CA 95678
Phone: (916) 782-8700 Fax: (916) 782-8750

LAKE TAHOE LAUNDRY WORKS
1024 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA

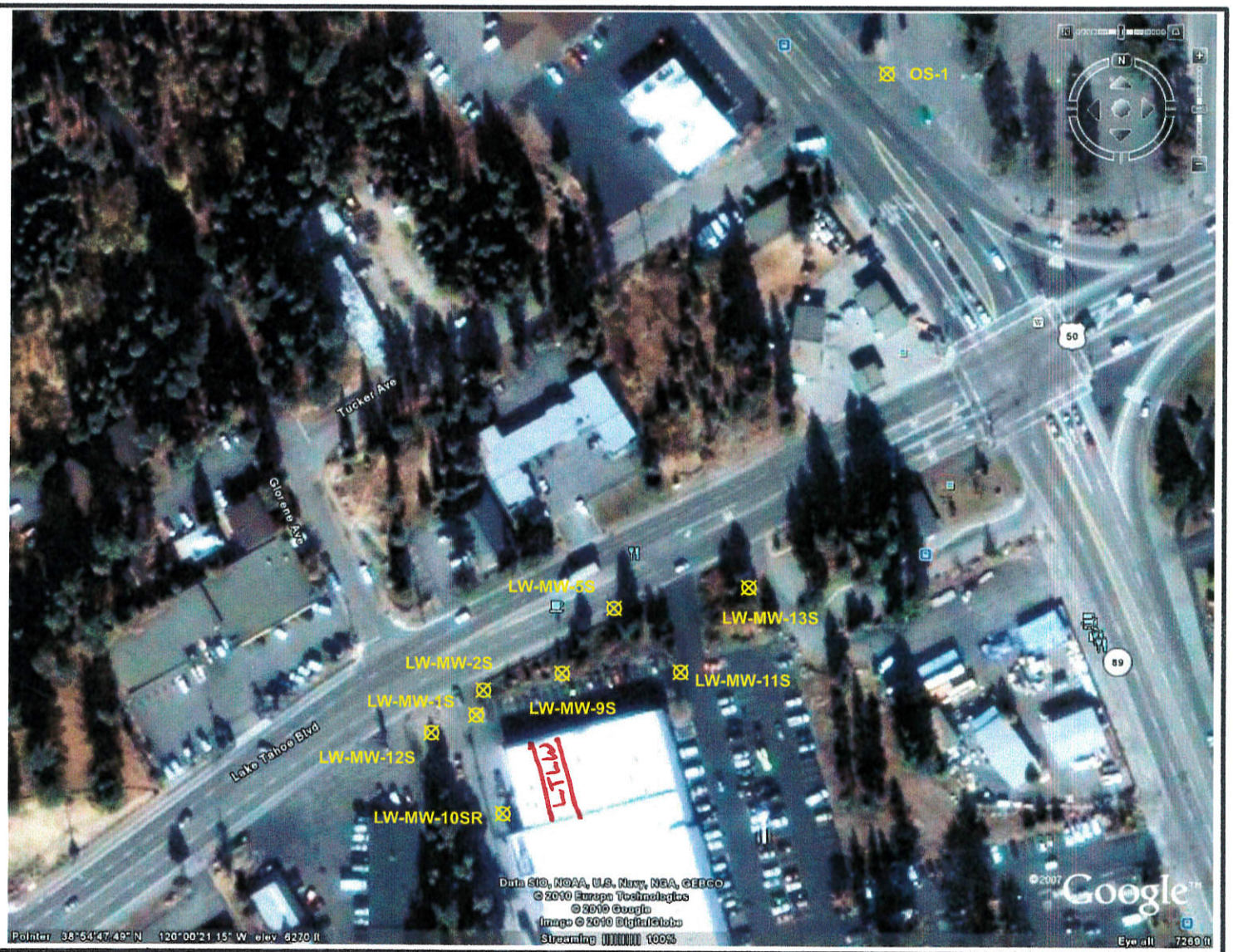
SITE LOCATION MAP

Attachment 1


EMERALD BAY ROAD
James
Eloise
Roger
Tata
Glorene
5th
Dunlap
Gardner
LAKE TAHOE BOULEVARD
120 ppb
Swiss Mart Station
29 ppb
Honda Dealership
430 ppb
Approximate Position
STPUD Clement Well
100 ppb
Norma's Cleaners
450 ppb
Big O Tire
4,700 ppb
Placer Title Co.
Open Space
Runnel's Automotive
69 ppb
Lakeside Automotive
3,000 ppb
South Shore Motors
2.5 ppb
Shehadi Motors
1.7 ppb
Lake Tahoe Auto Village
6.4 ppb
South Y Intersection
Facility
560 ppb
2.4 ppb
200 ppb
890 ppb
0.60 ppb
Montgomery Ward
ND
USA MW-38D
ND
Shell Station
18 ppb
Tata #4 Well
South Y Well
LEGEND
1.7 ppb
Location of PCE Sampling Point
Location of Monitoring Well
Location of Municipal Supply Well
N
0 100 200 400
Approximate Scale 1"= 233'
SIERRA-PACIFIC GROUP
Attachment 2
Prep. By: EDC
Reviewed By:
Prep. Date: 12/15/03
Review Date:
File: Strong Area Wide Study Map

LEGEND

⊠ Approximate Location of Groundwater Monitoring Well
LW-MW-1S



N

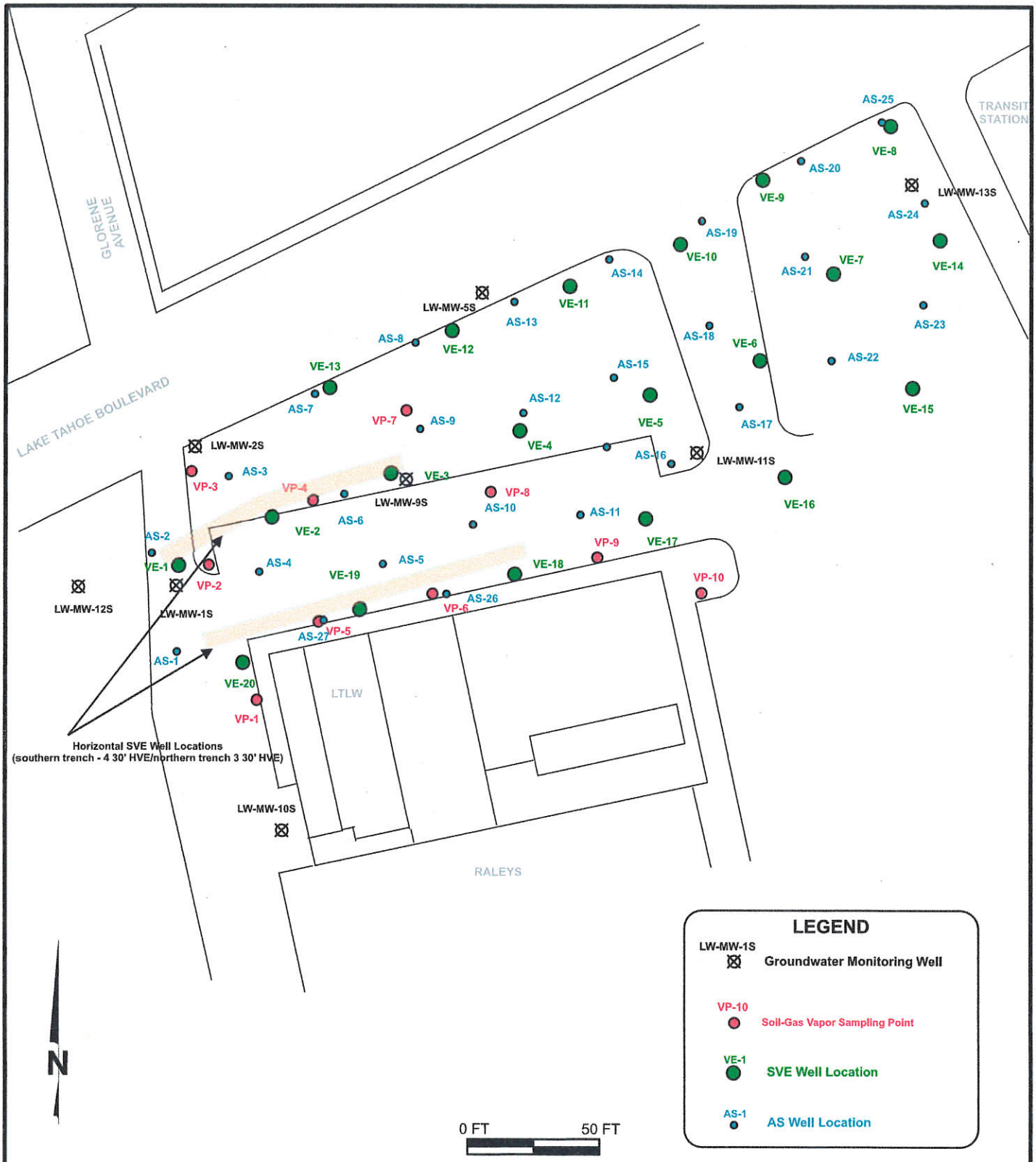
NOT TO SCALE

E2C REMEDIATION
Environmental Engineering, Consulting & Remediation, Inc.
1020 Winding Creek Rd., #110, Roseville, CA 95678
Phone: (916) 782-8700 Fax: (916) 782-8750

LAKE TAHOE LAUNDRY WORKS
1024 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA

SITE PLAN

Attachment 3



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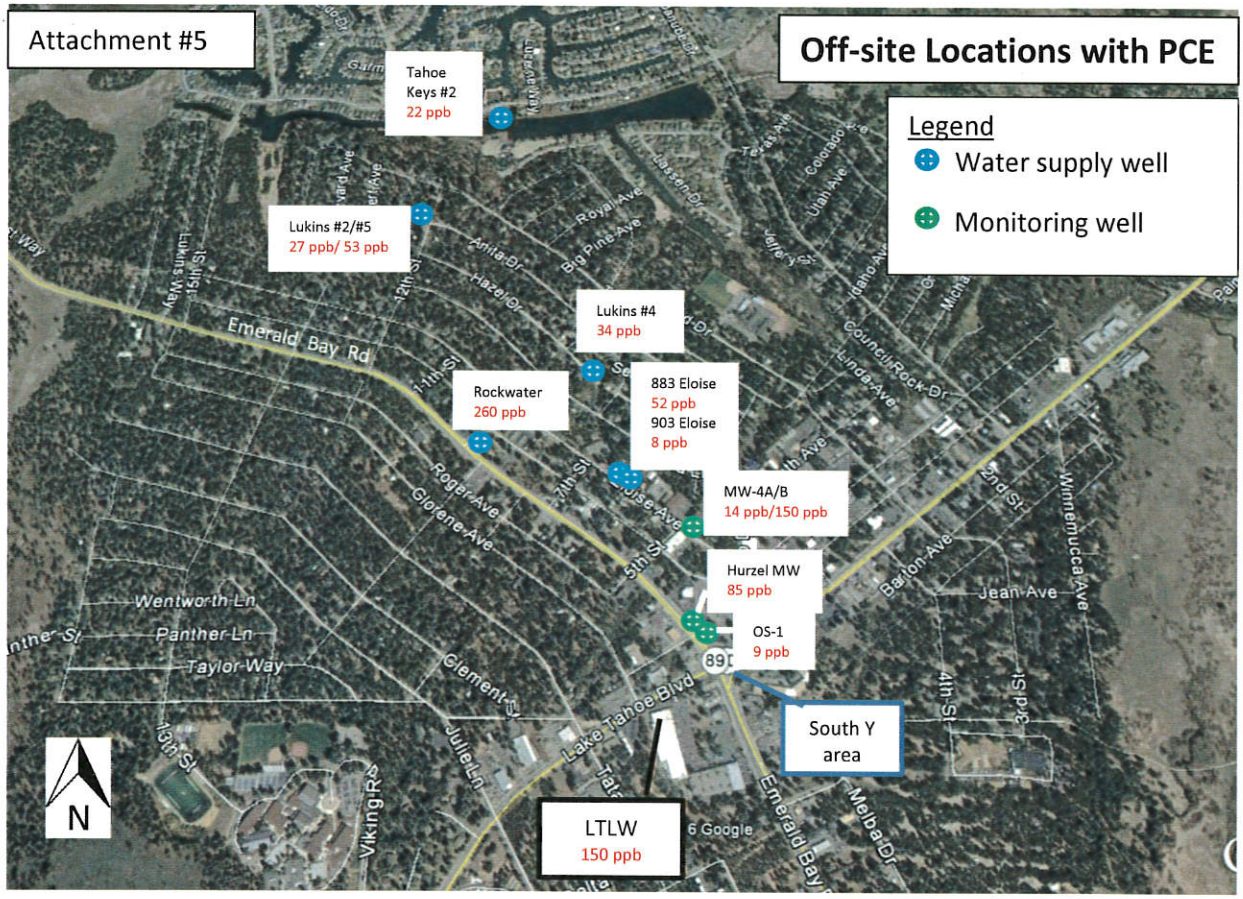
LAKE TAHOE LAUNDRY WORKS
1024 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA

REMEDIATION WELL LOCATION PLOT

Attachment 4


Attachment #5
Off-site Locations with PCE
Legend
Water supply well
Monitoring well
Tahoe Keys #2
22 ppb
Lukins #2/#5
27 ppb/ 53 ppb
Lukins #4
34 ppb
Rockwater
260 ppb
883 Eloise
52 ppb
903 Eloise
8 ppb
MW-4A/B
14 ppb/150 ppb
Hurzel MW
85 ppb
OS-1
9 ppb
South Y area
LTLW
150 ppb
Emerald Bay Rd
Lake Tahoe Blvd
Wentworth Ln
Panther Ln
Taylor Way
Roger Ave
Glolene Ave
Eloise Ave
Hazel Dr
Anita Dr
Royal Ave
Big Pine Ave
Council Rock Dr
Linda Ave
Barton Ave
Jean Ave
Winnemucca Ave
Clement St
Julie Ln
Viking Rd
Melba Dr
Emerald Bay
Lukins Way
13th St
11th St
7th St
5th St
4th St
3rd St
2nd St
N

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

CLEANUP AND ABATEMENT ORDER
NO. R6T-2015-PROP

APPENDIX A

History of Groundwater Impacts and Supply Wells

Well Impacts

1. Since 1989 when chlorinated hydrocarbons (e.g., solvents) were required to be tested in regulated water supply wells, compounds such as tetrachloroethene (PCE), trichloroethene (TCE), and dichloroethene (DCE) were detected in private and municipal supply wells north and south of the South Y area of South Lake Tahoe, where Lake Tahoe Boulevard intersects with Emerald Bay Road. Many supply wells have since ceased operating due to PCE concentrations exceeding the drinking water standard of 5 micrograms per liter (µg/L). Such supply wells have included three South Tahoe Public Utility District (STPUD or District) wells (Tata #4, South Y, and Julie) in the 1990s and 2006, two Lukins Brothers Water Company wells (No. 3 and No. 4) in 1989 and 1994, a motel well on Emerald Bay Road, a mobile home park well on James Avenue, and private domestic wells on Eloise and Dunlap Avenues.

2. The well owners mentioned above incurred significant costs to add wellhead treatment, replace the wells or hook up to municipal water supply. The STPUD Clement Well had installed wellhead treatment at its Clement Well in 1991 due to high PCE concentrations which peaked at 200 µg/L in 1996. This well has been inactive since 1999 due to MTBE contamination in the aquifer from area gas stations. The loss of four supply wells hindered the District's ability to provide adequate supply to customers in South Lake Tahoe. At great cost, the District installed a new supply well (Valhalla Well) on USFS lands near Camp Richardson, west of the city limits. The Valhalla Well began operating in 2000.

3. As supply wells in the South Y area were shut down over time, PCE in groundwater was no longer being captured and migrated with natural groundwater flow towards Lake Tahoe, in the north. Sampling showed PCE concentrations increasing in the Tahoe Keys Water Company (TKWC) Well #2 on Venice Drive in the Tahoe Keys subdivision, one mile north of the South Y intersection. Since 2007, PCE has been consistently detected in the #2 at concentrations greater than the 5 µg/L drinking water standard. The Tahoe Keys Water Company Well No. 2 was shut down in 2009 until wellhead treatment was installed and the well resume operating in 2012. PCE concentrations peaked during July 2015 when 22 µg/L was detected in the municipal well. TKWC Well #2 operates during summer when the population in the Keys increases. The well is down for a majority of the year, meaning the uncontained PCE plume may be reaching Lake Tahoe during those months.

4. As of 2016, there exist only five municipal wells operating in the South Y and near the western area in the city: Lukins Brothers Water Company Well #1, the District's Valhalla Well, and all three TKWC wells (#1, #2, #3). Approximately nine domestic wells also operate in the area. Sampling shows that PCE is not detected in supply wells in the western end of the city limits.

Aquifer Investigations

1. Beginning in the early 1990s, the Water Board conducted investigations using State funds to identify potential PCE sources in the South Y area affecting water supply wells. A soil gas investigation was conducted along public roads on the south side of the South Y intersection in 1992. The investigation detected PCE in soil gas samples but could not pinpoint a source location. A Geoprobe groundwater investigation was conducted in the mid-1990s both south and north of the Y intersection. Low levels of PCE in shallow (less than 20 ft) water table samples were not able to identify source locations. However, the investigation results indicated that certain properties were not PCE sources, including the South Tahoe High School auto shop, car dealerships on Lake Tahoe Boulevard, and businesses on Industrial Avenue.

2. In 1997, the South Tahoe Public Utility District in conjunction with the Water Board began investigations to identify potential source(s) of PCE contamination. One investigation was a pump test of the Clement Well located on Clement Street, located on the south side of the South Y intersection. Investigation findings indicated that PCE concentrations were reaching the Clement Well at depths greater than 48 feet and down to approximately 115 feet bgs.

3. Previous investigations conducted in the South Y area were able to reduce the region of potential PCE sources: James Avenue in the north, Dunlap Street in the east, Clement Street in the south, and 7th Street in the west. In the late 1990s, the Water Board started issuing investigative order letters to property owners of businesses that may have used solvent chemicals at one time. These businesses were car dealerships, auto repair facilities, the City maintenance yard, print shops, former dry cleaners, and laundromats that may have contained a self-service dry cleaning machine. While these investigations showed mostly low levels of PCE detection in groundwater, no significant detections in soil were found indicating a source.

4. In 2001, the Water Board issued investigative orders for groundwater investigations for the Lakeside Napa Auto Store (1935 Lake Tahoe Boulevard) and the Big O Tires Store (1961 Lake Tahoe Boulevard). Both these properties are located on the south side of the South Y intersection. Investigations at both properties showed PCE detections in groundwater in the thousands of micrograms per liter. In 2003, cleanup and abatement orders were issued to the responsible parties at both sites requiring further site characterization and a work plan for clean-up actions. Both property owners claimed to not be solvent sources and provided information to the Water Board that indicated PCE had not been used on the properties.

5. About this time, the Water Board learned that the laundromat across the street from the Big O Tires Store had once contained a self-service dry cleaning machine. The laundromat, called the Lake Tahoe Laundry Works, is located on the north end of an "L" shaped shopping center. In 2003, the Water Board issued an investigative order to the shopping center property owner requiring a workplan and groundwater investigation technical report.

Lake Tahoe Laundry Works

1. Since 2003, the Water Board issued the first investigative order to the shopping center property owner, Seven Spring Limited, for evaluating the presence and extent of chlorinated hydrocarbon contamination from the Facility. Solvent contamination was found not only in groundwater but also in soil at significant amounts to indicate the property was a source. Overall, five site investigations were conducted between 2003 and 2008. In the northern parking lot of the shopping center, soil contamination was detected up to 12 milligrams per kilograms (mg/kg) as PCE at 8 feet bgs and at 0.33 mg/kg at 40 feet bgs. A soil gas investigation detected PCE, TCE, and DCE in soil gas at ten locations surrounding the north side of the building and in the parking lot. PCE in soil gas has been detected up to 7 parts per million by volume (ppmV).

2. The suspected source for the solvent release was a self-service, coin-operated, dry cleaning machine in the laundromat and the hose used to transfer solvent chemicals from delivery trucks in the parking lot. The dry cleaning machine was removed from the site about 1979. Investigation data suggests that a majority of solvent mass exists above and below the fluctuating water table.

3. Groundwater investigations have collected water samples from both temporary and permanent sampling locations. Samples collected from on-site monitoring well locations have historically detected PCE in groundwater up to 5,380 µg/L, TCE up to 74 µg/L, cis-1,2-DCE up to 339 µg/L, and 1,1-DCE at 7.7 µg/L. Such concentrations exceeded the primary drinking water standards for the respective constituents and demonstrated significant impairment to the drinking water aquifer and its designated beneficial uses.

4. According to investigation reports, the geology beneath the Facility consists of an unconfined sandy aquifer with thin fine-grained lenses. A thick silt layer was identified at 50 feet bgs and the base of the unconfined aquifer is approximately 100 feet bgs. The water table varies in depth from 4.4 feet in wet years to 17 feet in dry years. Investigation at another South Y site[1] found groundwater velocity varies from 1.1 to 1.9 feet/day (normal velocity is faster in spring and during above average wet precipitation years).

5. The concentrations and extent of solvent compounds in groundwater correlate with the extent of both soil contamination in the northwest portion of the site and soil gas beneath the building and parking which is more wide-spread. Under

[1] South Tahoe Public Utility District, South Y Extraction Well Suitability Investigation (GEI Consultants, June 2016)

orders by the Water Board, on June 4, 2009, the Dischargers submitted the document, Interim Remedial Action Workplan, proposing air sparge and soil vapor extraction (AS/SVE) to remediate chlorinated hydrocarbons in soil and groundwater beneath the Facility. Following Water Board approval and following completion of a 60-day pilot test, the AS/SVE system continuously operated at the site beginning in spring 2010. The system was designed to provide a "curtain" of remediation so that no groundwater containing contaminant would migrate from the Facility property.

6. Following a significant decline in contaminant concentrations in groundwater, the Water Board accepted the responsible parties' October 2012 proposal to switch remediation to ozone sparging to provide polishing of remaining concentrations. Unknown to the Water Board, the ozone system operated for only 5 days in early 2013 and would remain down for repairs for six months until August 2013. The subsequent monitoring report showed that solvent compounds had significantly increased in concentration in groundwater during sampling in September 2013. This information indicated that significant source remained at the site and that the solvent plume in groundwater had migrated unchecked for at least six months. The Water Board ordered the responsible parties to return cleanup activities using the AS/SVE system which they did on November 2013. That system has been in operation ever since.

7. During the drought years from 2012 to 2015, solvent compounds in groundwater decreased in concentration as the water table dropped from 5 feet bgs to 18 feet bgs. Upon the return of average precipitation in 2016, the water table rose to 10 feet bgs. Solvent compounds also increased in concentration in groundwater from single digits in 2015 to 180 µg/L in March 2016. In addition, Water Board staff determined the findings of an air sparge test conducted in early 2016 indicated inconsistent and inadequate remediation across the site. These inconsistencies likely meant that not all PCE was being remediated on site and was migrating off-site towards the north. The findings could explain why PCE was detected up to 150 µg/L in off-site monitoring wells on the north side of the South Y intersection in late 2015. Water Board staff interpret these results to mean an off-site PCE plume in groundwater extends an unknown distance from the site and that additional remediation is needed to clean up remaining solvent in soil.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

CLEANUP AND ABATEMENT ORDER
NO. R6T-2015-PROP

APPENDIX B

Identifying Dischargers

I. Legal Authority and Standard of Proof

1. The state policy that establishes policies and procedures for investigation and cleanup and abatement of discharges under Water Code section 13304, State Water Resources Control Board (SWRCB) Resolution No. 92-49[1], provides that regional boards take "reasonable efforts" to identify dischargers associated with the discharge. (SWRCB Resolution No. 92-49, Hereby Ordered I.B.). Identifying all dischargers is not necessary to proceed with requiring a discharger to investigate and clean up. *Id*. The Prosecution Team took reasonable efforts to identify persons responsible for the discharge of PCE, or the condition of pollution or nuisance associated with the discharge of PCE, who would be liable for cleanup under Water Code section 13304.

2. The Water Board may issue a Cleanup and Abatement Order (CAO or Order) to any person who "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 waters of the state and creates, or threatens to create, a condition of pollution or nuisance." (Wat. Code, § 13304, subd. (a)). Water Code section 13304 obligates any person that has "caused or permitted" waste to be discharged that creates or threatens to create a condition of pollution to clean up the waste, abate the effects of the waste, or take other necessary remedial action. The key question in assigning responsibility for the cleanup and abatement is whether the discharger caused or permitted the discharge.

   The applicable evidentiary standard used by the Water Board, in the first instance, to evaluate whether a discharger caused or permitted the discharge to waters of the state is not specified in the Water Code, the Administrative Procedures Act, or State Water Board orders[2]. Where there is no law specifying the relevant standard of proof, Evidence Code section 115 may govern the

[1] This Resolution was adopted following all procedures required by state law and is legally binding on discharges and other state agencies. (Water Code section 13146 and Government Code section 11353).

[2] Though Fox Capital articulates the relevant evidentiary standard is the "substantial evidence" standard citing to Order No. WQ 85-7 *In the Matter of the Petition of Exxon Company, U.S.A., et al*, the Prosecution Team clarifies that this is the applicable standard *upon review by the State Water Board* and upon a petition for a writ of mandamus as discussed in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-515.

evidentiary standard of proof for administrative proceedings. Evidence Code section 115 which reads in part, "Except as otherwise provided by law, the burden of proof requires proof by a preponderance of the evidence." Title 23 of the California Code of Regulations does not require that administrative adjudicative proceedings follow Section 115 of the Evidence Code and the water boards are not strictly bound by the rules of evidence (see 23 Cal. Code Regs., tit. 23, § 648(b) and Gov. Code § 11513(c)). However, it is appropriate to apply the default rule in the Evidence Code to this administrative matter. Further support regarding the evidentiary standard in administrative cases can be found by examining the burden of proof applied by other administrative agencies. In these cases, when an administrative agency sits as a trier of fact, the "preponderance of evidence" standard of proof is applied. (see *Skelly v. State Personnel Bd.* (1975) 15 Cal. 3d 194, 204, fn. 19, *Gardner v. Commission on Professional Competence* (1985) 164 Cal.App. 3d 1035, 1039, *McCoy v. Board of Retirement*, (1986) 183 Cal.App. 3d 1044, 1051, *Mann v. Dept. of Motor Vehicles* (1999) 76 Cal.App. 4th 312, 318, *San Benito Foods v. Veneman* (1889) 50 Cal.App. 4th 1889, 1893). Consistent with Evidence Code section 115 and other administrative cases, the Prosecution Team applies the "preponderance of evidence" standard.

3. This CAO names Seven Springs Limited Partnership, Century Properties Equity Fund 73, and Bobby Page's Inc. as dischargers subject to the cleanup and abatement requirements of this Order. The weight of the evidence indicates that it is more likely than not that the Dischargers caused or permitted discharges of waste to waters of the state thereby creating a condition of pollution and/or nuisance.

II. Named Dischargers

A. Seven Springs Limited Partnership

1. The State Water Board has recognized in several orders that current landowners should be named as dischargers in cleanup orders, regardless of whether the landowner owned at the time of the initial release. (*In the Matter of the Petition of Harold and Joyce Logsdon* (SWRCB Order No. WQ 84-6); *In the Matter of the Petition of Zoecon Corp.* (SWRCB Order No. WQ 86-02); *In the Matter of the Petition of Vallco Park, Ltd.* (SWRCB Order No. WQ 86-18)). The current landowner has legal control over the property and the authority to prevent the escape of waste into waters of the state. As property owner, Seven Springs Limited Partnership has the ability to prevent the continued migration of the contamination which is directly discharging constituents into water. According to El Dorado County property records, Seven Springs Limited Partnership became the owner of the Facility in 1991. Seven Springs Limited Partnership is an appropriate discharger and is properly named on this Order.

B. Fox Capital Management Corporation (General Partner of Century Properties Equity Fund 73)

1. The State Water Board has held that "[a] landowner is ultimately responsible for the condition of his property, even if he is not involved in the day-to-day operations. If he knows of a discharge on his property and has sufficient control of the property to correct it, he should be subject to cleanup order under Water Code section 13304." (*In the Matter of Arthur Spitzer*, SWRCB Order No. WQ 89-8). The water boards have adjudicated numerous actions against prior landowners and have found those responsible if they owned or were in possession of the site, had the knowledge of the activities which resulted in the discharge, and had the legal ability to prevent the discharge. (see SWRCB Order Nos. WQ 85-7, 86-15, 91-7, 92-13, 84-6).

2. Century Properties Equity Fund 73, a Limited Partnership, was the owner of the Facility at the time the self-service, coin-operated, dry cleaning machine[3] existed in the laundromat during the 1970s. It is appropriate to presently name Fox Capital Management Corporation as a discharger on this Order where Fox & Carskadon Financial Corporation was the general partner of Century Properties Equity Fund 73 and subsequently changed its name to Fox Capital Management Corporation in or around 1986[4]. A general partner is "liable jointly and severally for all obligations of the limited partnership." (repealed Corp. Code § 15643(b)[5]). As a general partner, Fox Capital Management Corporation, formerly Fox & Carskadon Financial Corporation, was responsible, among other obligations, for managing the business of the partnership including leasing out retail space, managing and maintaining common areas such as sidewalks, parking areas, delivery areas and the like. We consider Fox Capital Management Corporation ultimately responsible for any action of Century Properties Equity Fund 73 as its corporate successor.

3. Century 73 had sufficient control over the Site to maintain the premises to prevent and/or minimize the discharge of VOCs to groundwater where Century 73 always retained possession and control over the common areas such as sidewalks, parking areas, trash disposal areas, and no particular tenant had an exclusive right or duty to maintain these areas. Century 73 failed to maintain the common areas thereby allowing waste to discharge to groundwater.

[3] As alleged in Fox Capital Management's third party complaint, Alliance Laundry Systems LLC was the manufacturer of the Speed Queen coin-operated dry-cleaning allegedly located at the Site, which used perchloroethlene in its dry-cleaning solvent.

[4] See Certificate of Limited Partnership filed with the Secretary of State on October 16, 1986.

[5] Repealed Corporations Code section 15643(b) was the applicable statute in effect at the existence of this partnership.

4. There is sufficient evidence based on a number of different factors, which taken as a whole, lead the Prosecution Team to conclude that Century 73, as a prior landowner, caused and/or permitted the discharge of waste to waters of the state:

   a) Improper maintenance of common areas created a pathway for solvents that leaked from the LTLW facility to discharge to soil and groundwater. In an action to recover monies for responsibility under CERCLA, the claimants allege that "Century 73's failure to properly maintain the sidewalk, parking lot, driveway in front of and near the laundromat, spills and leaks of PCE that occurred during PCE deliveries entered the soil and potentially the groundwater at the South Y Site through cracks and holes in the sidewalk, parking lot, and/or driveway." (see Fox Comments on Proposed Order, Exhibit J, p. 3). The cracks and holes in the common spaces of the Site served as a conduit for PCE to enter the soils beneath the Site and groundwater which sits just below X feet from the ground surface. In *County of San Diego*, National City is named as responsible for cleanup in a cleanup and abatement order because it held an easement and retained authority to control and maintain the street, which overlies a landfill. (Order No. 96-2, p. 11). The State Board found that improper maintenance of the roadway, sewage, and storm water collection systems contributed to the pollution problems at the landfill. *Id*. Concrete and pavement are not impermeable and spills of PCE during the transfer of solvents to the 30-50 gallon drum would inevitably result in some solvents reaching the soil and groundwater. The permeability of concrete and pavement greatly increases when cracks are present. The Prosecution Team finds that the lack of maintenance in common areas such as the sidewalk and parking lot created a conduit for PCE to soil and groundwater which resulted in detections of PCE in groundwater at orders of magnitude greater in the parking lot area than other areas on the Site. Century 73 remains responsible under this Order because it retained ownership and control over areas where the Prosecution Team contends that discharges took place.

   b) The Prosecution Team relies on the following to find that the drumming practices at the Site were inadequate to protect from the discharge of chemicals into the environment. Seven Springs Limited Partnership alleged in a complaint against Fox Capital Management Corporation for CERCLA cost recovery that “the company that provided the PCE would park its truck in front of the laundromat and drag a hose from the truck into the laundromat to refill a large storage drum located in a closet behind the coin-operated dry-cleaning unit.” (Complaint Pursuant to CERCLA and for Express Contractual Indemnity, p. 3). Additionally, it is alleged that “PCE spilled into the parking lot from the hose and/or the truck.” *Id*. Maintenance activities often led to careless spills of PCE from the hose and/or the truck. The drumming practice of solvents was described in a previous State Board Order, *In the Matter of the Petition of Stinnes-Western Chemical Corporation* (SWRCB Order No.

WQ 86-16). The drumming practice of solvents at Western Chemical involved the "dripping or runoff from the hose [that] would go onto the concrete slab . . . after the drumming process was completed, the wet hose was laid flat on the concrete slab to dry out or situated to drain by gravity. During the draining process, the chemical would drip from the hose onto the slab." *Id*. at 7-8. The State Water Board found that the discharge of solvents did occur in numerous instances during the drumming process and due to leaking drums. (*Id.* at 9). The California Regional Water Quality Control Board, San Francisco Bay Region found that past standard practices of chemical handling, including for PCE, was insufficient to protect the environment from chemical pollution. (*Id*. at 9.) The re-filling of solvents at a chemical facility is likely not entirely different from the re-filling of solvents for a coin-operated dry cleaning unit. Mrs. Baisley confirms in her deposition that a hose was connected to the truck that refilled the solvent drum and the truck parked in the parking lot in front.[6] Available literature related to the maintenance of coin-operated dry cleaning units in the 1970s and 1980s noted that contamination generally results from practices of significant releases during solvent delivery or in solvent storage areas.[7] Taking all of these factors into consideration, it is reasonable to find that spills took place at this Site from the hose and truck that was used to re-fill the drum that contained solvents. Direct testimony from percipient witnesses is not available, but based on the information available related to this Site and the historic practice of re-filling solvent storage drums, it is reasonable to conclude that during the five years of Century 73's ownership when the coin operated drying cleaning unit was on-site, activities resulted in discharges of PCE to the ground.

c) Century 73 owned and leased the Site for more than ten consecutive years. Century 73 was aware of the coin-operated laundry machine at the Facility[8]. As discussed above, contamination likely occurred from the storage and handling of PCE at the Site. PCE is the same chemical which has been found in soils and groundwater at the Site in concentrations exceeding human health requirements. Very high concentrations of VOCs were historically detected in ground water and soil directly beneath the coin-operated dry cleaning machine and low lying area in the parking lot in front of LTLW. This data is informative and supports the contention that the drum attached to the coin-operated dry cleaning machine that stored PCE leaked or spilled VOCs onto the ground in the area extending from the front of the building, where the coin-operated dry cleaning unit was located, to the parking lot in front of

[6] See Deposition of Mary Louise Baisley dated April 13, 2007, p.89.
[7] (see https://drycleancoalition.org/download/dryclean_cardamone.pdf, last accessed on June 10, 2016)
[8] See Lease dated May 24, 1972 between Connolly Development, Inc. and Robert Prupas and Berniece Prupas subleasing the Site to Bobby Page's, Inc. identifying a coin-operated machine. The lease identified a lease period of ten years. Presumably, this lease stayed in effect even after Century Property Equity Fund 73 purchased the Site from Connolly Development, Inc. in 1974.

LTLW.[9] The data also supports the contention that VOCs discharged to the parking lot area likely when PCE deliveries were conducted to refill the drum of the coin-operated machine. Significant deterioration of the parking lot and sidewalks were documented in 1985[10] and appeared to have been in existence for several years already. Mrs. Baisley testifies that she was aware of cracks in the sidewalk right outside of the laundromat where the coin operated machine was located.[11] The cracks remained in disrepair during the period of her tenancy. According to the Post Closing Memorandum (Exhibit H of Fox's Comments on the Proposed Order), in 1986 the concrete sidewalk slabs were deteriorating and in such bad condition and had not been repaired since 1974. Small cracks are always present in concrete.[12] The Prosecution Team contends that during Century 73's ownership, solvents spilled from the drum and/or from the re-filling activities onto the ground which infiltrated contaminants into soil and groundwater through the cracks in the surfaces.

d) Extreme weather conditions in the Tahoe Basin can account for severe weathering of pavement and other surfaces. Frequent freeze and thaw conditions result in formation and deepening of cracks from poor or lack of maintenance. Following the release of solvent compounds to pavement, rainfall and snowmelt flow into cracks and openings in the sidewalks and parking lot pavement that were in disrepair, thereby contributing to the pollution of groundwater by pushing solvents further into the subsurface. Runoff results in a discharge of chemical spills or leaks that are also transported to landscape areas. VOCs would then percolate into soil and groundwater.

e) PCE has been found in a number of water supply and monitoring wells downgradient from the Site and consistent with the anticipated flow direction. VOCs are not naturally occurring and have not been attributed to any upgradient source. The Dischargers have not installed a monitoring well considered to be in the upgradient flow direction of the Facility; MW-10 originally thought to be an upgradient well on the Facility parcel is actually affected at times by soil gas beneath the building foundation.

f) Based on the extent of the PCE plume migration, as mapped in Attachment # (for Table 2), it is reasonable to assume that the plume began during Century 73's ten year ownership of the Site. At a conservative movement rate of 1

[9] There is no indication in the record showing that maintenance or testing of the drum or connected hoses was ever done. Absent evidence to the contrary, the facility investigations of water quality data support the Prosecution Team's contention.

[10] See Deposition of Mary Louise Baisley dated April 13, 2007, Exhibit 11 (Post Closing Memorandum dated April 22, 1986) noting that a reduction in the purchase price of $135,000 was necessary to repave the parking lot and repair sidewalk/concrete.

[11] See Deposition of Mary Louise Baisley dated April 13, 2007, pp. 47-48.

[12] See, e.g. William B. Kayes, "Construction of Linings for Reservoirs, Tanks, and Pollution Control Facilities.", John Wiley and Sons, 1977 and "Petrology of Concrete Affected by Cement – Aggregate Reaction", Duncan McConnell et al., Geological Society of America, November 1950, p. 232, et seq.

foot per day, the PCE plume could have migrated 13,100 feet during the past 36 years since 1979. Based upon partial plume containment by pumping water supply wells in the 1980s and 1990s, the plume could still have potentially reached the Tahoe Keys #2 well, 5,820 feet to the north, during the past 20 years.

5. There is little to no direct evidence such as testimony from percipient witnesses who were present during the time of operation of the coin operated dry cleaning machine and could potentially provide supporting evidence regarding discharges that occurred. Because the time period of operating the coin operated dry cleaning machine was a number of years ago (more than thirty-five years ago), key witnesses have passed away and relevant documents cannot be found.

6. The realities of legacy cleanup sites, such as the Lake Tahoe Laundry Works Facility, present a challenge to obtaining evidence related to specific discharge events. It is imperative that the Water Board consider the totality of the circumstances when considering which parties to identify as having caused or permitted waste to be discharged. In doing so, the Water Board is exercising its full authority and jurisdiction to protect the quality of waters in this state. The Prosecution Team opines that based on the totality of circumstances, Century 73 did permit discharges of waste by virtue of having held an important legal interest in the property during the time that the self-service dry cleaning unit was in use by its tenants. The circumstantial evidence along with reasonable inferences support that more likely than not, Fox Capital Management Corporation discharged and/or permitted the discharge of PCE because it was aware of the coin-operated machine that discharged PCE to groundwater during Century 73's ownership and Century 73 had sufficient control over the Site to prevent and/or minimize the discharge of VOCs to groundwater.

C. Bobby Page's, Inc.

1. Bobby Page's, Inc.[13] was the operator and/or lessee for the duration of when the coin-operated dry cleaning unit was on-site. Bobby Page's Inc. had sufficient control over the Site to maintain the premises to prevent and/or minimize the discharge of VOCs to groundwater where it had possession and control of the area that housed the coin-operated drying cleaning unit. Bobby Page's Inc. operated and leased the Site for nearly the entire duration the coin-operated dry cleaning unit at the Site. The Prosecution Team finds that the drumming and refilling of PCE described above resulted in PCE discharges to groundwater which is evidenced by the detections of PCE in groundwater in order of

[13] Bobby Page's Inc. was registered to do business in California in 1972. The entity has since surrendered its ability to conduct business in the state of California. Bobby Pages Dry Cleaners & Shirt Laundry currently operates a dry cleaning business in Nevada. On its website, it explains the history of the company. Bobby Page's Cleaners was first opened in Lake Tahoe, California. It appears that this is the same company that leased the Site from Connolly Development Inc. on May 24, 1972. (Fox Comments on Proposed Order, Exhibit H).

magnitudes higher in the area by the doorway of the Lake Tahoe Laundry Works facility where the coin-operated dry cleaning unit was located than other areas within the Site. Bobby Page's Inc. is a discharger under this Order because it had the ownership and control over areas where the Prosecution Team contends that discharges took place. Based on the totality of the circumstances, the weight of the evidence supports naming Bobby Page's, Inc. as a discharger in this Order.

III. Public Policy Considerations

1. Public policy considerations also warrant identifying Seven Springs Limited Partnership, Century Properties Equity Fund 73, and Bobby Page's Inc. as dischargers. Judge Skelly Wright so eloquently wrote in *Ethyl Corp. v. EPA*, "Man's ability to alter his environment has developed far more rapidly than his ability to foresee with certainty the effects of his alterations. It is only recently that we have begun to appreciate the danger posed by unregulated modification of the world around us, and have created watchdog agencies whose task it is to warn us, and protect us, when technological 'advances' present dangers unappreciated--or unrevealed--by their supporters. Such agencies, unequipped with crystal balls and unable to read the future, are nonetheless charged with evaluating the effects of unprecedented environmental modifications, often made on a massive scale. Necessarily, they must deal with predictions and uncertainty, with developing evidence, with conflicting evidence, and, sometimes, with little or no evidence at all." (*Ethyl Corp. v. EPA* (1976) 541 F.2d 1, 6).

2. Factoring in public policy considerations and the duty to protect water quality, the Water Board should name all three identified dischargers as parties responsible for the cleanup and abatement. The definition of a "discharger" should include parties where a now contaminant of concern was introduced into the stream of commerce before being designated as a pollutant by regulatory agencies. To the extent possible, multiple parties should be named in cases of disputed responsibility where fewer parties named may mean that no one is able to cleanup legacy pollution sites. (see generally, *In the Matter of the Petition of Stinnes-Western Chemical Corporation* (SWRCB Order No. WQ 86-16) and *In the Matter of the Petition of County of San Diego* (SWRCB Order No. WQ 96-2), p. 12). By not holding the prior owner and operator of the Site responsible as a discharger, the Water Board may inadvertently send the message that responsibility for cleanup falls solely on the current landowner that had no involvement in the activities that first caused and created pollution of the aquifer. Fairness dictates that this cannot be the result.

LAHONTAN MEMO

TO: Patty Z. Kouyoumdjian
Executive Officer
Lahontan Regional Water Quality Control Board

FROM: Lisa Dernbach
Senior Engineering Geologist (Specialist)
Lahontan Regional Water Quality Control Board

DATE: July 18, 2016

SUBJECT: ***Response to Comments*, Lake Tahoe Laundry Works Cleanup and Abatement Order (CAO) R6V-2016-PROP**

The Lahontan Regional Water Quality Control Board's Prosecution Team (Prosecution Team) is providing responses to stakeholder comments and recommendations to the Advisory Team for revisions to the proposed subject line CAO. Comments were received from Fox Capital Management Corporation; PES Environmental, Inc. on behalf of Commerce Bank for Seven Springs Limited Partnership; South Tahoe Public Utility District; Lukins Brothers Water Company; Tahoe Keys Water Company; and Andrew A. Kopania.

The Prosecution Team reviewed all comments received and where appropriate, made revisions to the September 15, 2016, version of the proposed CAO. Comment letters may be viewed at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/enforcement/laundry_works_cao.shtml.

I. Hogan Lovells on behalf of Fox Capital Management Corporation Comments

Though Fox Capital articulates the relevant legal standard is the "substantial evidence" standard citing to Order No. WQ 85-7 In the Matter of the Petition of Exxon Company, U.S.A., et al, the Prosecution Team notes that this is the applicable standard upon review by the State Water Board and upon a petition for a writ of mandamus as discussed in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-515. Substantial evidence means "credible and reasonable evidence." Order No. WQ 93-14 In the Matter of the Petition of Sanmina Corp. The appropriate evidentiary standard is the preponderance of the evidence. In other words, the Prosecution Team must convince the trier of fact, the Water Board, that its version of a fact is more likely than not the true version. Appendix B of the Revised Proposed Order contains a more detailed explanation regarding the burden of proof for administrative proceedings.

1. There is no basis for naming Fox or Century 73 as a Discharger under the Water Code. The Proposed Order fails to provide the substantial evidence that is required in order to hold a former property owner liable under Section 13304 of the Water Code.

Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in paragraphs 11 through 15 and Appendix B of the Revised Proposed Order.

2. The Regional Board has not produced substantial evidence of a discharge during a Fox Party's ownership of the South Y Site.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

3. The Regional Board has not produced substantial evidence that Century 73 or Fox knew or should have known of a discharge.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

4. The Regional Board has not produced substantial evidence that Century 73 or Fox could have prevented a discharge.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

5. Even if the Regional Board could establish that Century 73 or Fox is considered a discharger under Section 13304, Fox still would not be liable for off-site work under the Proposed Order because the Regional Board has not shown that the off-site contamination migrated from the South Y Site.

   Prosecution Team Response: As stated in revised Findings 2, 4, 19, and Appendix A in the Revised Proposed Order, PCE has been detected in many off-site locations[1] that are within the range of downgradient groundwater flow from the LTLW site. Finding 31 is revised to state that results of the January 2016 air sparge test show inconsistent remedial effectiveness across the LTLW site, leading to off-site PCE migration. Based on the principles of hydrogeology and contaminant transport properties and groundwater data from wells downgradient of the Site, and the fact that no other PCE source has been identified in the Regional Board's aquifer investigations, the Prosecution Team contends that it has met its evidentiary burden, that PCE detected in downgradient off-site wells is from past and ongoing releases at the Site. Fox asserts that the air sparge performance test conducted in early 2016 shows that PCE is not migrating off-site. However, as noted in the Prosecution Team's Comments on the Air Sparge Performance Test dated May 24, 2016, the performance test cannot be reasonably relied upon to support the contention that the remediation system is providing complete coverage to remediate the solvents in soil and groundwater. Fox Capital and Seven Springs rely on results from three air sparge wells that are not necessarily representative of all 27 air sparge wells. Additionally, the performance test reflects data during the most optimal performance of the system at the early stages of air sparge expansion rather than during steady state conditions. While some PCE is contained on-site from remediation activities, the data is insufficient to support the contention that remediation is providing complete coverage. PCE is probably not being fully contained by the current remediation system. The detection of concentrations of PCE in downgradient off-site

[1] OS-1, Hurzel monitoring well, 883 and 903 Eloise Avenue, Lukins #4, TKWC #2, MW-4A/B

wells along with the principles of fate and transport allow Water Board staff to make reasonable inferences that support the finding that some amount of PCE migrated, and continues to migrate, off-Site despite remediation efforts..

6. The distribution of PCE in groundwater does not support the Proposed Order's conclusions of the Site being the source for off-site PCE migration. On-site PCE concentrations in the shallow groundwater were high compared to middle zone groundwater where concentrations are lower. The PCE distribution in off-site groundwater is the opposite: concentrations are higher in the middle-zone compared to shallow groundwater.

Prosecution Team Response:
Text books and research articles[2] on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and/or influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table.

The reason for VOC detection at different depths in the aquifer at off-site locations compared to the LTLW Site is explained in several ways. The first explanation is depicted in the enclosed figure[3] showing a cross section of DNAPL fate and transport in groundwater. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L) were detected near the water table at the source area on the LTLW Site but in middle-depth groundwater at boring GW-7,[4] located approximately 110 feet north in Lake Tahoe Boulevard.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW Site during the 1970s, it would have been affected by the pumping of nearby supply wells until they were turned off in 2001[5]. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. This would explain PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-6 (between the Napa Auto and LTLW sites) and also PCE detections beneath the Napa Auto site at 48 ft bgs. After the Clement well ceased operating in 2001, groundwater flow would have shifted to a more northerly direction as seen today. In 2004, 1,200 µg/L PCE was detected in middle-depth groundwater at boring GW-9 <u>on the LTLW site</u> in the direction towards the South Y intersection. While Fox and Seven Springs contend **high PCE concentrations exist only in shallow groundwater on the LTLW site, theories of fate and transport support a contrary conclusion.** The Fourth Quarter 2009

[2] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research
[3] 1989 Waterloo Centre for Groundwater Research
[4] 230 µg/L PCE at 44 feet in GW-7 in September 2004
[5] February 10, 2016 letter by Ivo Bergsohn, South Tahoe Public Utility District

Groundwater Monitoring Report for the LTLW Site stated, "Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data." This inconsistency can be explained by theories of fate and transport for solvent contamination. The Prosecution Team contends that the high levels of VOCs detected in the middle depth of the aquifer beneath the LTLW Site, Lake Tahoe Boulevard, and the Napa Auto and Big O sites are from PCE discharges originating from the LTLW Site.

7. SVE/GASS (soil vapor extraction/groundwater air sparge system) has successfully removed VOCs from the subsurface and contained the VOC plume on-site.

   Prosecution Team Response: Water Board staff does not agree with this statement. Our May 24, 2016 letter responding to the January 2016 air sparge test results, states that the remediation zone-of-influence was inconsistent in each of the three air sparge wells tested and suggested inconsistent remediation across the site. Also, smaller radius-of-influence under steady state conditions than originally calculated would mean that remediation coverage is not overlapping at most or all locations, allowing for plume migration between remediation points. Preferential pathways for air flow, such as beneath low permeability layers, indicate areas above the low permeability layer are not subject to remediation. The air sparge test results are incomplete in that there are no monitoring wells between LW-MW-2S and LW-MW-5S (approximately 125 feet apart) and between LW-MW-5S and LW-MW-13S (approximately 170 feet apart). This gap in data points is far too large to support any assertion that contaminants in groundwater are contained on-site. These issues cause the Water Board to conclude that complete coverage at the Site is lacking. It is likely that remediation is inconsistent and inadequate across the Site as detailed in its Comments on Air Sparge Performance Test letter dated May 24, 2016. While on-site monitoring data indicates a certain degree of plume containment over the years, without a complete set of monitoring data that covers that large gaps in monitoring wells, the Prosecution Team continues to assert that the PCE concentrations in OS-1 and other off-site monitoring wells downgradient are attributable to the Site.

8. Both groundwater flow data and groundwater quality data indicate that LTLW is not impacting the Hurzel Property or monitoring well OS-1.

   Prosecution Team Response: Water Board staff does not agree with this statement. Monitoring reports since 2010 show groundwater flow from the LTLW Site as ranging from north-northwest to northeast. A majority of these reports state the flow direction is "generally north" which is why in 2009 Water Board staff accepted the location of off-site monitoring well OS-1 as being slightly east of due north of the release location. In addition, the detection in 2004 of 1,200 µg/L PCE in middle-depth groundwater at boring GW-9 on the LTLW Site in the northeast direction indicates both groundwater flow direction and impacted quality towards the South Y intersection. Since remedial actions did not begin until 2010, PCE detected in GW-9 in 2004 would have migrated off-site approximately half a mile[6] by then, well past OS-1 and the Hurzel property. Thus, data exists in monitoring reports and past investigation reports showing that PCE from the LTLW site has flowed towards the South Y intersection and currently flows towards OS-1.

[6] Assumes a conservative groundwater rate of 1.2 feet per day over six years

9. (The Proposed Order) contends that the South Y Site is a source of the Off-site Contamination in part because it believes there are no other sources of PCE in the vicinity, our review found that the Regional Board has not fully evaluated other possible sources of the Off-site Contamination. These sources include the Lakeside Napa Auto facility, the former Big O Tire facility, and the former Exxon service station (current Transit Terminal).

   Prosecution Team Response: Other potential PCE sources in the vicinity of the LTLW have been adequately evaluated and found to not be contributing to PCE impacts affecting groundwater quality. Past investigations at the Napa Auto site and the Big O site were deemed adequate and results indicated no PCE sources existed. As explained in the Water Board's response to comments for No Further Action letters for the Napa Auto site and the former Big O Tires site, the source of PCE in groundwater beneath these sites was determined to be from off-site in the upgradient flow direction, that being the LTLW site. The same is true for the former Exxon Station, which was located decades ago on the corner of Lake Tahoe Boulevard and Emerald Bay Road. Past groundwater investigations conducted for the former South Y Shell Station, located immediately to the southeast of the Exxon Station, included sampling adjacent to the latter location. The investigation found that PCE concentrations in the tens of micrograms per liter increased in the upgradient flow direction towards the southwest and did not increase as groundwater flowed beneath the former Exxon site. At the same time, groundwater investigations at the LTLW Site in 2003 detected PCE concentrations in the hundreds of micrograms per liter beneath the Site. This information indicates the former Exxon Station was not a source contributing to PCE concentrations in groundwater. As reasonable investigations have been conducted over time in the South Y area, only the LTLW site was found to be a source of PCE contamination in soil and groundwater. All other nearby properties have not been shown as sources of PCE contamination (Appendix A).

10. The work required by the Proposed Order is not necessary because Seven Springs and Fox have been remediating the South Y Site since 2009 (sic), and that remediation has been effective in reducing the on-site PCE concentrations and containing the contamination within the boundaries of the South Y Site.

    Prosecution Team Response: Water Board staff agrees that PCE concentrations in groundwater have reduced over time since operation of the SVA/GASS remediation system began in 2010 but that should not be confused with plume containment. As discussed in our May 24, 2016 response to the January 2016 air sparge test, the results indicate inconsistent remediation in air sparge wells across the Site. Smaller radius-of-influence under steady state conditions than originally calculated would mean that remediation coverage is not overlapping at most or all locations, allowing for plume migration between remediation points. This explains why PCE concentrations are detected at off-site monitoring well OS-1 every quarter and at other off-site monitoring well locations at other times.

    Review of remediation system data in quarterly monitoring reports finds the current remediation system has likely reached its effectiveness as designed. Data indicates that where remedial actions have reached solvents in soil during the five years of operation, they are likely cleaned up. But where remedial actions have not been able to reach soil contamination, such as in or above low permeable layers and between radii of influences under steady state conditions, contaminants remain a constant source for groundwater

contamination. It is apparent to Water Board staff that additional remedial actions are needed to remediate solvent sources remaining on-site and contain the contaminant plume migrating in groundwater to off-site locations.

11. The Proposed Order's requirements for containment are completely unnecessary:

- The remaining contamination at the Site is limited to a small area in the vicinity of LW-MW-1S and LW-MW-5S and concentrations of PCE in all other wells at the site are below the MCL of 5 µg/L.

Prosecution Team Response: The Water Board has not been provided data verifying the accuracy of the above statement. Spacing between monitoring wells along Lake Tahoe Boulevard is too great to definitely state that contamination on-site is limited to certain small areas. Additionally, no soil samples at previously identified PCE source areas have been collected since the remediation system began operating in 2010. Therefore, the extent of remaining contamination at the Site is unknown. This fact is evident when the remediation system is off, monitoring reports show increases in soil gas data indicating PCE sources continue to exist beneath the building footprint as well as beneath the parking lot.

- The zone of influence of the SVE/GASS remediation system at the site effectively recludes any remaining contamination from migrating off-site.

Prosecution Team Response: See response to Item 7.

- The Regional Board's off-site investigation performed in 2015 did not find any contamination contributable to the site, which confirms no additional containment is needed because PCE is not migrating from the site.

Prosecution Team Response: The Water Board's 2015 PCE investigation did find PCE in off-site monitoring wells. Up to 150 ug/L PCE was detected in MW-4B and 14 ug/L PCE was detected in MW-4B, located on Eloise Avenue near the Fifth Street intersection. This monitoring well location is due north of OS-1 and within the calculated range for the groundwater flow direction from the LTLW site. Off-site investigations are needed to evaluate whether PCE detections in MW-4A/B originated from the LTLW Site and, if so, the fate of their migration since the time samples were collected in November 2015. As described further in Hogan Lovells Response to Comments #6, the groundwater data and theories of fate and transport support more likely than not that the Site is the source of PCE in off-site monitoring wells.

- The replacement water requirement is unfounded as nothing in the Proposed Order indicates that there are any impacted supply wells downgradient of the site.

Prosecution Team Response: This requirement has been removed from the order since there were no directives for Fox Capital and Seven Springs to comply with. If the determination of impacted supply wellsis made after off-site investigations of the extent of PCE migration in groundwater are conducted. the law allows the Water Board to require that replacement water be provided by parties responsible for the unauthorized discharge. In this instance, a new order will be issued.

12. The evidence does not establish that the off-site contamination is associated with releases from the LTLW. The Proposed Order's investigation and corrective action requirements are unwarranted.

    Prosecution Team Response: The Prosecution Team asserts that it has met its evidentiary burden, that PCE in off-site wells is associated with the releases from the Site. Investigation and corrective action requirements are warranted since the Prosecution Team has established based on groundwater data that demonstrates the PCE plume is not being contained on the LTLW site. For the reasons discussed in the above responses, reasonable inferences support the contention that the groundwater plume is probably continuously migrating from the Site despite remedial action efforts. At the very least, the Dischargers must investigate the horizontal and vertical extent of PCE contamination in groundwater which migrated from the Site when no remedial systems operated for six months in 2013 and boundary monitoring wells LW-MW-2S and LW-MW-5S showed higher than normal PCE levels (tens and hundreds of micrograms per liter versus single digits) for nine months. The resumption of the SVE/GASS in November 2013 would have had no effect on containing the PCE plume migrating with groundwater off-Site, which now poses a threat to off-site receptors.

13. A number of mis-statements are identified in the Proposed Order and are attached as Exhibit JJJ.

    Prosecution Team Response: Comment noted. The Prosecution Team reviewed all of the comments provided in Exhibit JJJ and, where appropriate, have suggested revisions in the Revised Proposed Order.

II. PES Environmental (on behalf of Seven Springs Limited Partnership and the Commerce Bank) Comments

1. The Order presents an inaccurate and misleading depiction of the regulatory history of the Site, leading the reader to believe that Seven Springs and Fox have not been involved in a long, extensive, and objectively successful cleanup of the Site. Paragraphs 2-8 briefly describes the basic history of the Site without mentioning the considerable efforts made by Seven Springs to address the presence of VOCs and be responsive to the RWQCB's concerns since 2003…A brief history of the responsible parties ongoing cooperation is provided.

   Prosecution Team Response: The Revised Proposed Order and Appendix A accurately describe the regulatory history of the Site and the involvement by Fox Capital and Seven Springs. The Revised Proposed Order includes the same dates and corrective actions as those listed in the comments and implemented at the Site but without all the details. At no time does the Revised Proposed Order state or indicate that Fox Capital and Seven Springs refused to cooperate when completing corrective actions ordered by the Water Board. But as suggested, we have added a statement in Finding 10 concerning Fox Capital and Seven Springs' compliance with past Water Board directives.

2. Items 9 through 17 draw the conclusion that groundwater affected with PCE has migrated from the Site and affected off-Site well OS-1 and other wells located…up to 2,000 feet northeast of the Site…Based on (the) distribution of PCE in groundwater and the predominant direction of groundwater flow (north-northwest), it is not reasonable to

assume PCE-affected groundwater from the Site is the source of PCE detected in off-Site wells to the northeast.

Prosecution Team Response: See responses to Hogan Lovells comments #5 through #9.

3. For Paragraphs 18 through 23…Seven Springs objects to the proposed closure of (the Lakeside Napa Auto and Big O Tires) sites despite evidence indicating that these sites, not LTLW, are likely sources of PCE contamination north of Lake Tahoe Boulevard.

   Prosecution Team Response: Objections to the closure of Napa Auto and Big O Tires sites were noted in comments received for the proposed Notice of No Further Action for each property. The response to comments describe in detail why each site was considered by Water Board staff to not be a source of PCE contamination affecting groundwater quality. The Prosecution Team has recommended the Executive Officer issue No Further Action letters for these sites.

4. In Paragraph 26, the Order identifies Seven Springs as a responsible party pursuant to section 2720. This section of the regulations is inapplicable to this matter and Seven Springs objects to its application here.

   Prosecution Team Response: The Revised Proposed Order removes references to Section 2720 of Title 23 of the California Code of Regulations.

5. In Paragraphs 27 through 34, the Order indicates the SVE/GASS shutdowns resulted in an increase in PCE concentrations in groundwater…The increases in PCE concentrations described in Paragraph 32…reflect PCE increases in LW-MW-1S, which is located on-Site and is not a downgradient well. The extent of the PCE concentrations increases should be viewed in the context…in the downgradient wells. Wells LW-MW-2S and LW-MW-5S are located on the northern edge of the Site and are the wells closest to and downgradient of well LW-MW-1S. Concentrations of PCE in wells LW-MW-2S and LW-MW-5S following the SVE/GASS shutdown in 2013 were measured at maximum values 86 ug/L and 150 ug/L, respectively. It should be noted that these maximum values were limited in duration to one quarter and the PCE levels measured since those events have been below or near the MCL. The sustained reduction in PCE concentrations is directly related to the successful operation of the SVE/GASS, which continues to operate at the Site. Therefore, the monitoring data contradicts the assertion of large impacts to off-Site groundwater reflected in the Order.

   Prosecution Team Response: See responses to Hogan Lovells comments #7, #10 through #12. The monitoring data does not contradict, rather it shows effective remediation immediately upgradient of those monitoring wells. However, based on PCE concentrations in downgradient off-Site monitoring wells and principles of fate and transport along with the direction of natural groundwater flow, PCE is likely migrating off-Site from gaps in the remediation system and between monitoring well spacings.

6. In Paragraph 38 of the Order, the RWQCB implies that detection of PCE, TCE, and DCE in off-Site (supply) wells…have been affected by VOC-affected groundwater migrating from the Site. Groundwater remediation has been conducted at the Site since 2010, and with few exceptions since 2012 the PCE concentrations detected in (on-Site) downgradient wells have been close to or below drinking water standards. Furthermore,

the distance of these affected off-Site wells from the Site and the direction of groundwater flow from the Site demonstrates that those impacts are not related to the migration of PCE-affected groundwater from the Site.

Prosecution Team Response: See responses to Hogan Lovells comments #5 through #10.

7. Seven Springs objects to the statements made in the Order in this section alleging that Seven Springs and Fox have not contained PCE on-Site and is responsible for PCE contamination migrating off-Site. The Order presents no foundation for these statements, nor has any reasoned basis for holding Seven Springs and Fox accountable for PCE contamination in the area.

   Prosecution Team Response: See responses to Hogan Lovells comments #5 through #10.

8. …in Paragraph 47, the Order proposes five corrective actions, including containment, off-site investigation, active cleanup and abatement of on-site contamination, off-site containment and remediation, and monitoring and reporting obligations. No reasonable evidence has been presented by the RWQCB suggesting that existing on-Site cleanup is inadequate, given that monitoring reports consistently show decreasing levels of contaminants on Site, or that any off-Site containment and remediation is necessary or required…

   Prosecution Team Response: See responses to Hogan Lovells comments #11 and #12.

9. Item No. 2 of the Orders section…requires that Seven Springs and Fox, within 30 days of the Order, submit a work plan…proposing a method, other than SVE/GASS or (the) ozone sparge system to contain migration of chlorinated VOCs in groundwater within the Site. Seven Springs proposes to negotiate with the RWQCB alternate methods of achieving its desired results…

   Prosecution Team Response: As stated in Water Board May 24, 2016 letter about the results of the January 2016 air sparge test, the remediation system has likely reached its effectiveness as designed. Data indicates that where remedial actions have reached solvents in soil during the five years of operation, they are likely cleaned up. But where remedial actions have not been able to reach soil contamination, such as in or above low permeable layers and between radii of influences under steady state conditions, contaminants remain a constant source for groundwater contamination. It is apparent to Water Board staff that additional remedial actions are needed to remediate solvent sources remaining on-site and contain the plume migrating in groundwater to off-site locations. The Water Board encourages the parties to consider the types of alternate technologies that can be applied at the Site to contain the PCE plume on-site and continue clean-up actions for remaining contamination in soil and groundwater.

III. South Tahoe Public Utility District Comments

1. Finding No. 2. Numerous contamination assessment investigations have been performed throughout the South Y Area. Many of the contamination assessment reports from these investigations include boring logs and geologic cross-sections that were used to delineate the extent of MtBE contamination in groundwater. Review and evaluation of

this data should be performed to better define the hydro stratigraphy below the Facility and through the affected off-site areas. The LRWQCB should consider adding this information to the existing paragraph.

Prosecution Team Response: Comment noted. Information of boring logs and geologic cross sections from other investigations has been added to Appendix A of the CAO.

2. Finding No. 3. Last sentence- In order to acknowledge the District's installation of a packed column air stripper at the Clement Well in 1991 to remove PCE contamination from groundwater, consider changing to: …well owners incurred significant costs to either add wellhead treatment, replace the wells or hook-up to municipal water supply.

   Prosecution Team Response: Comment noted and acknowledged in the supply well history described in Appendix A.

3. Finding No. 4. It would be helpful to add the locations of properties where site investigations have been performed to identify the potential sources of PCE contamination to Attachment 1.

   Prosecution Team Response: The finding has been revised to provide more types of sites that have undergone groundwater investigations to identify PCE sources. The finding's purpose is to demonstrate the Water Board's due diligence in conducting past investigations and requiring investigations of others. This shows that the Dischargers are not being unfairly singled out for being required to implement corrective actions for cleanup and abatement of PCE contamination. Some of the locations of properties that have performed investigations in the past are shown on the map in Attachment 2.

4. Findings No. 9. Suggest adding the screen interval depths to the PCE Concentration table.

   Prosecution Team Response: This finding has been updated (now Finding 17) to include third quarter 2015 site data and the screen interval of the listed wells.

5. Findings No. 14. The District's Clement Well was taken off-line due to MtBE contamination in 2001. The District abandoned the Julie, South Y and Tata No. 4 wells in 2006. As these wells have been removed from service, variations in groundwater flow direction reported in groundwater investigations completed since 2008, should not be attributed to the operation of these public water supply wells.

   Prosecution Team Response: Comment noted. The termination of the District's municipal wells over time and their affect upon groundwater flow have been clarified in the Revised Proposed Order.

6. Finding No. 15. Shallow aquifers throughout the South Y Area contain various soil materials ranging from gravelly sands to silty fine sands, silt and clay. The aquifer characteristics of these differing materials can have a substantial effect on groundwater flow paths and the dispersion of PCE contamination through the aquifer. Aquifer heterogeneity should also be considered when estimating groundwater plume dimensions in the South Y Area. The probability that chlorinated hydrocarbons have

sorbed to fine grained material must also be considered when the persistence of PCE in the aquifer is apparent.

Prosecution Team Response: Comment noted. The geologic characteristics of the aquifer and the likely effect upon PCE contamination have been better described in the Revised Proposed Order.

7. Finding No. 27. The District has four (4) public water supply wells neighboring the South Y Area which have been affected by PCE groundwater contamination (Clement, Julie, South Y and Tata Well No. 4). Three (3) of these wells have been destroyed; the fourth well (Clement) is presently inactive. In 1997, the District in conjunction with LRWQCB began investigations to identify the potential source(s) of PCE contamination found in the Clement Well. Findings of this investigation indicated that PCE detected in the Clement Well was likely moving through water-bearing zones at depths greater than 48 feet. Further investigations have shown that highest concentrations of PCE were detected in water samples collected from observation wells screened through the lowest portion of the Clement Well production zone at a depth of approximately 115 feet. The vertical extent of PCE contamination in the Clement Well shows that limiting remediation efforts to the "shallow groundwater area" is not likely adequate to protect off-site receptors affected by this contamination. Remediation efforts should extend to depths that include deeper water bearing zones pumped for drinking water supply by nearby public and private water supply wells.

   Prosecution Team Response: Comment noted. The main findings of the 1997 Clement Well pump test have been added to history in Appendix A to aid in better hydrogeologic understanding of PCE capture by municipal wells. The Revised Proposed Order requires the parties to investigate the vertical extent of off-Site PCE contamination in the aquifer relative to the screened intervals of supply wells.

8. Finding 28. It is unclear how soil vapor extraction and air sparge remediation systems (SVE/AS) deployed at the Lake Tahoe Laundry Works (LTLW) provide any effective means of hydraulic control to prevent off-site migration of the PCE contaminant plume. The LRWQCB should require proof of hydraulic control as a condition of continuing remediation efforts at the LTLW. If those efforts prove to be ineffective, then alternate hydraulic control methods should be required.

   Prosecution Team Response: When designed properly, overlapping air sparge wells zone-of-influences have the ability in mostly homogeneous aquifers to remediate VOC plumes in slow moving groundwater before migrating off site. It appears from the data in the January 2016 Air Sparge Test that the aquifer beneath the Site is more heterogenous than homogenous, allowing for inconsistent remediation. Therefore, the Findings section has been revised to provide more rationale about the inabilities of the current remediation systems to clean up remaining solvent sources in soil and contain plume migration on site. The order section has also been revised to be more clear that an alternate method for plume containment, other than the current systems in place, is required along with an off-site monitoring program designed to better evaluate the potential for off-site plume migration.

9. Finding 31. The SVE/AS system was replaced with a "pulsed" ozone sparge system in January/February 2013. Ozone sparge systems lack hydraulic control. If improperly applied, operation of the ozone sparge system could adversely impact groundwater flow directions and gradients, increasing the rate of contaminant plume movement.

Operations data, including system run times, injection pressures, sparge flow rates and local groundwater elevations should be collected on a regular basis and reported to the LRWQCB to insure that the LTLW system is being operated in an appropriate manner.

Prosecution Team Response: See response to the District's comment 8.

10. Finding 32. Operation of ozone sparge systems often show short term "spikes" in dissolved contaminant concentrations which are often attributed to the release of adsorbed-phase contaminants to the dissolved phase. This may also explain the 100-fold increase in PCE concentrations observed at the LTLW site (LW-MW-1S) in July 2013.

    Prosecution Team Response: Water Board staff agrees with the comment that remediation spikes are sometimes seen immediately following a remedial action such as the operation of the ozone sparge system. In this case, the ozone sparge system operated for five days in late-January to early February 2013 and a spike in concentration should have been seen during first quarter groundwater monitoring in March 2013. Instead, no increase in PCE concentration was seen in any of the on-site monitoring wells. Rather, the first PCE spike in LW-MW-1S and all but one monitoring well was seen in July 2013, even though no remedial action occurred during the prior quarter. This spike and others in following quarters appears to coincide during the time when remedial actions were lacking at the site and groundwater was being affected by remaining soil contamination.

11. Finding 34. Proof of hydraulic control should be added as a condition of continued operation of the remediation system. This could be provided in part, using remediation system logs showing site- appropriate AS flow rates and injection pressures; and potentiometric maps showing groundwater flow directions and hydraulic gradients during operation.

    Prosecution Team Response: See response to the District's comment 8.

12. Finding 41. Loss of water production resulting from the impairment of public water supply wells operated by LBWC and the Tahoe Keys Water Company (TKWC) has caused these water systems to enter into Mutual Aid and Assistance Agreements with the District. These agreements provide for the delivery of drinking water from the District's water system through an inter-tie on an as-needed and available basis. The LRWQCB should request financial assistance from the Discharger for this replacement water.

Prosecution Team Response: Comment noted. This finding has been revised to include the two other water purveyors having to enter into Mutual Aid and Assistance Agreements with the District. The determination of impacted supply wells may occur after off-site investigations of the extent of PCE migration in groundwater are conducted. Should an active supply well be impacted with PCE from the LTLW site, the law allows the Water Board to require that replacement water be provided by parties responsible for the unauthorized discharge.

13. The LRWQCB should also consider requiring the Discharger to evaluate the effect from operation of the ozone sparge system at the Facility, on the mobilization of adsorbed PCE contamination to groundwater. This evaluation should attempt to provide a mass–balance showing the amount of contaminant transferred from the absorbed to dissolved-phase; the amount of contaminant mass destroyed by the ozone sparge system; and the remaining contaminant mass released to groundwater. The findings of this evaluation should be provided in the technical report.

    Prosecution Team Response: Comment noted. The Dischargers are currently required to provide mass balance calculations in quarterly monitoring reports. The First Quarter 2016 Groundwater Monitoring and Remediation Status Report calculates an estimate residual PCE mass in vadose zone vapor of 0.0026 pounds and in groundwater of 0.005 pounds. The latter calculation is based on monitoring well data which Water Board staff believes is too low and not fully representative of on-Site conditions given the large spacing between some wells, such as those along Lake Tahoe Boulevard (LW-MW-2S, LW-MW-5S, and LW-MW-13S). This requirement will continue in the future regardless of the type of remedial action implemented at the LTLW site.

14. Finding 46. There is a long and established history of public water supply wells used for drinking water production located in and around the South Y Area. Many of these wells are either inactive or have been destroyed due to impairment by either MtBE and/or PCE groundwater contaminant plumes. Supplemental corrective actions should be required to protect public health and restore the drinking water aquifer through this area for municipal and domestic supply.

    Prosecution Team Response: Comment noted. The Findings and Orders sections have been supplemented to make it clear that all parts of the drinking water aquifer affected by solvent contamination from the LTLW site must be cleaned up to background concentrations (not just to drinking water standards) to restore it for the beneficial uses.

15. Orders: General Comment: The LRWQCB should require the Order to address all groundwater contamination, not just contamination in down-gradient groundwater. For example, the current order only appears to require the Dischargers to provide replacement water or service to well users' down-gradient of the Facility. The Order itself, however, suggests that the contaminated groundwater can move in multiple directions, not just down gradient.

    Prosecution Team Response: Comment noted. The Revised Proposed Order clarifies that the Dischargers must investigate, contain, and clean up and abate all solvent discharges from the LTLW site affecting water quality in the aquifer in addition to those in thedowngradient flow direction.

16. Item 1: Require analyses showing hydraulic containment of the PCE contaminant plume prior to resuming "continuous" operation of the SVE/AS system.

Prosecution Team Response: The purpose of this Ordered Paragraph is to require the Dischargers to operate the current remediation system as previously approved by the Water Board while other corrective actions are being considered as per the Revised Proposed Order. The continuous operation of the AS/SVE also serves a dual purpose by preventing the accumulation of indoor air vapor inside buildings that has the potential to occur when soil gas concentrations spike when remediation is down for too long at the site. Order #2.1.1 requires the Dischargers to propose a monitoring program different than what's currently in place to verify on-site plume containment.

17. Item 2.1.1: Boundary Containment Monitoring should be established at the leading edge of the PCE groundwater contaminant plume. The presence of PCE contamination in LBWC # 4, #2 and #5 wells; and TKWC #2 well shows that the leading edge of the contaminant plume is likely located north of Patricia Lane. Boundary Containment Monitoring should be determined after the full lateral and vertical extent of the PCE contaminant plume has been adequately delineated.

    Prosecution Team Response: Comment noted. The Revised Proposed Order already states that an off-site corrective action plan (CAP) shall be submitted following definition of the extent of the solvent plume in groundwater. The order has been revised to clarify that off-site containment and monitoring of the solvent plume must occur to prevent future impacts to domestic and municipal supply wells rather than "north of Patricia Lane."

18. Item 4.1: The presence of PCE contamination in LBWC # 4, #2 and #5 wells; and TKWC #2 well shows the leading edge of the contaminant plume is likely located north of Patricia Lane. The off-site investigation should include areas north of 883 Eloise Avenue to define the extent of PCE contamination at depths consistent with the perforated intervals of the neighboring public and private water supply wells.

    Prosecution Team Response: We agree with the comment and have revised Order #4 to require off-site investigations to define the extent of PCE contamination at depths consistent with the perforated intervals of the public and private water supply wells, out to the TKWC #2 well on Venice Drive.

19. Item 4.3.6: Geologic sections from the Facility to the extent of groundwater sampling are important tools to show the full lateral and vertical extent of contamination. These should be made a requirement of the technical report and not an "if applicable" option.

    Prosecution Team Response: We agree with the comment and have deleted the phrase, "if applicable."

IV. Lukins Brothers Water Company Comments

1. Historical groundwater sample data reflects only shallow groundwater sampling has been completed at the site, while public water systems are discovering chlorinated hydrocarbons well above the MCL at well depths from 150' to as deep as 400'. This suggests that contamination originating at the subject site has migrated much deeper than the current shallow sample wells. Off-site investigations need to be completed to determine both the vertical and lateral extent of contamination. The extent of long term

damage to groundwater aquifers needs to be determined. Impacted aquifer regions need to be investigated at all affected depths so that proper remediation can begin.

Prosecution Team Response: Water Board staff agrees with the comment. The Findings section and Appendix A has been revised to include more history of supply wells impacted with PCE. Ordered Paragraph 3 has been revised to require off-site investigations at depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

2. Recent quarterly reporting by the Parties responsible for remediation of the subject site to Lahontan indicates that contamination still exists in soil despite 5 years of remedial actions. This source is alloeing(sic) groundwater contamination to continue to be generated every day. It would seem reasonable to consider alternate remedial measures for soil such as excavation of contaminated material and/or thermal treatment of contaminated area to quickly remediate the source and to prevent ongoing impacts to groundwater.

   Prosecution Team Response: Water Board staff agrees with the comment. Finding 31 has been revised stating that the current AS/SVE system is no longer effectively remediating contaminants and is not containing the plume from off-site migration. Ordered Paragraph 2 has been revised to more clearly state that an alternate method for plume containment, other than the current systems in place, is required along with an off-site monitoring program designed to better evaluate the potential for off-site plume migration.

3. In June of 2015, Fox Capitol Management Corporation and Seven Springs Limited Partnership entered into a stipulation agreement with Lahontan whereby Seven Springs and Fox Capitol agreed to provide replacement water to the well-owners located at 883 and 903 Eloise Avenue, South Lake Tahoe, as a result of domestic well water data indicating the presence of chlorinated hydrocarbons. Although all Parties agreed that neither Fox Capitol nor Seven Springs admitted to any liability under or any violation of the California Water Code or any other federal, state, or local law or ordinance, both the test results and the action to provide replacement water implies that the plume from 1024 Lake Tahoe Blvd. has migrated as far as Eloise Avenue, if not further. This further supports the need to determine the actual off site migration of the plume beyond Eloise since the time of discovery, both vertically and horizontally.

   Prosecution Team Response: See response to District Item 18.

4. Lahontan investigations have not been successful in identifying additional source(s) of PCE contamination affecting west side supply wells. Seven Springs and Fox Capitol, as the named source, should be responsible for determining the actual migration of PCE through the entire aquifer. We feel it would be in the best interest of all parties if any additional investigations are conducted in a similar fashion to the previous USA gasoline/MTBE investigation in South Lake Tahoe.

   Prosecution Team Response: See response to District Item 18.

5. According to the text of the proposed CAO, Fox Capitol Management Corporation and Seven Springs Partnership do not believe that the PCE contamination detected in various downgradient wells originated from the subject site. If this is their position, then they should complete the vertical and horizontal delineation of the plume that does emanate from the subject site to prove or disprove their belief. Completion of this delineation may also have the desired effect of eliminating or reducing the need for Lahontan to conduct expensive groundwater investigations looking for other sources.

   Prosecution Team Response: See response to District Item 18.

6. Information provided to the Water Board indicates that between February 5 and August 6, 2013, the ozone sparge system at the subject site had reportedly malfunctioned and required repairs. As a result of six months of down time, PCE concentrations in groundwater rose from 5.9 ppb to 490 ppb. This shutdown potentially created a new discharge from the 1024 Lake Tahoe Blvd. site. A complete investigation into this discharge should be conducted to determine both the horizontal and vertical delineation of contamination, and how it relates to the existing contaminant plume. In addition, Seven Springs and Fox Capitol should be responsible for off-site remediation associated with discharges from the subject site.

   Prosecution Team Response: Water Board staff agrees with the comment. Revised Finding 31 states the need for off-site investigations to define, at least, the extent of impacts to groundwater from contaminants that migrated away from the site in 2013. Ordered Paragraph 3 has been revised by adding more details of what a workplan for off-site investigation should look like.

7. Remediation systems need to be developed away from as well as at the original contamination site, as was done for the USA Gas Station. While efforts are being made to prevent any further discharge from leaving the site, past discharges that are migrating through the aquifer are continuing to contaminate the drinking water supply in the entire South Y area which jeopardize public health and safety. Remediation of the entire aquifer is the only way to attempt to contain the movement of the plume.

Prosecution Team Response: Water Board staff agrees with the comment. Revised Ordered Paragraph 4 now includes a statement that the off-site corrective action plan (CAP) must also propose off-site plume containment to prevent future impacts to domestic and municipal supply wells.

V. Tahoe Keys Property Homeowners Association Comments

1. Provides four comments on URS' January 19, 2016 PCE Investigation report.

   Prosecution Team Response: Comments are noted concerning the January 19, 2016 PCE Investigation Report and recommendations for future investigation.

2. Finding No. 3: Requests that its Well #2 be considered for inclusion as a municipal water supply well that continued to operate following the installation of PCE treatment facilities in July 2012.

   Prosecution Team Response: Comment noted. This finding has been revised to include the TKWC Well #2 as a supply well impacted with PCE.

3. Finding Nos. 28 and 34: The Proposed CAO should include a requirement for hydraulic control of the PCE at the LTLW site to prevent its continued migration down gradient.

   Prosecution Team Response: See response to District Item 5.

4. Finding 38: Requests that its Well #2 be considered for inclusion in Finding No. 38 as a municipal water supply well that continued to operation after the installation of PCE treatment facilities.

   Prosecution Team Response: Comment noted. Finding 2 has been revised to include the TKWC Well #2 as a supply well impacted with PCE, requiring installation of wellhead treatment. Finding 31 has been revised to include a statement that impacted supply wells warrant additional corrective actions by the Dischargers.

5. Finding No. 46: Requests requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area in the vicinity of thethree TKPOA municipal water supply wells.

   Prosecution Team Response: Comment noted. Finding 31 has been revised to state investigations and remediation need to extend to depths that account for deeper water bearing zones pumped for drinking water supply.

6. Order No. 3.1, requirements to monitor PCE in impacted wells should include the three TKPOA municipal water wells.

   Prosecution Team Response: Ordered Paragraph 3 has been deleted since it referred to future orders by the Water Board.

7. Order No. 4.1, requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area in the vicinity of the three TKPOA municipal water supply wells. TKPOA also requests that this determination be made consistent with the depth of the points of entry into the neighboring water supply wells.

   Prosecution Team Response: Comment noted. The Ordered Paragraphs have been revised (now Order 3) to require off-site investigation to be able to define the extent of PCE contamination at depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

8. Order No. 4.3.5, requirements to describe the depth of chlorinated hydrocarbons include the three TKPOA municipal water supply wells.

   Prosecution Team Response: This requirement has been revised (now Ordered Paragraph 3) to require a description of the full lateral and vertical extent of chlorinated hydrocarbons to 1 µg/L, including the depth of contamination from the Facility to off-site locations and supply wells currently or previously having impacts.

VI. Andrew A. Kopania Comments

1. Finding 19 refers to “two properties referenced in Paragraph 3”. From the context, it appears that those properties are referenced in Paragraph 4.

   Prosecution Team Response: Comment noted. The correct finding number has been inserted (now Finding 4).

2. The relatively steep hydraulic gradient described in paragraph 2 (0.01 to 0.06 ft/ft) suggests that an air sparge system would not be capable of developing an adequate capture zone to contain the VOC contamination emanating from the site. While the system may effectively treat a small area around each individual sparge well, the steep gradient and high groundwater flow velocities suggest that there may be substantial untreated mass between individual air sparge wells that is able to continually move downgradient.

   Prosecution Team Response: See response to the District’s comment 8.

3. The large rebound of almost 100-fold (5.9 µg/L to 550 µg/L) that occurred in 2013 when the air sparge system was down for approximately six months demonstrates that there is still substantial PCE mass present on the site that is not being treated or removed by the existing system.

   Prosecution Team Response: Water Board staff agrees with the comment. See response to the Lukins Brothers’ comment 6.

4. Order Item #3 – The monitoring reports would be of more value in evaluating the regional impacts from the site if they were also required to include data from affected STPUD, Lukins Brothers, and Tahoe Keys supply wells, to the extent that the Order requires sampling of all affected downgradient wells or the data can be obtained from the affected well owners.

   Prosecution Team Response: Water Board staff agrees, in general, with the comment but not in Ordered Paragraph 3, which states that the Dischargers may be required to provide replacement water when a supply well is determined to be impacted with contaminants from the LTLW site. Ordered Paragraph 3 has been deleted from the Revised Proposed Order. Ordered Paragraph 6, *Groundwater Monitoring and Reporting*, has been revised to include that monitoring reports show on maps the most recent PCE sampling results at supply wells.

5. Order Item #4 – It would be beneficial, and help clarify intent, if this section of the Order specifically required full vertical characterization of VOC impacts both on and off site.

   Prosecution Team Response: On-site contamination in the shallow zone of the unconfined aquifer appears to be mostly defined horizontally. The vertical extent of contamination in the deeper zone of the aquifer at the Facility needs definition and on-site monitoring requirements have been added to Ordered Paragraph 6, *Groundwater Monitoring and Reporting*. Revised Ordered Paragraph 3, referring to off-site investigation, clarifies that the vertical PCE delineation shall include depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

6. Order Item #4.3.6 – The phrase “if possible” is vague and should be deleted. This section should require development of a conceptual hydrogeologic model (not a numerical model – just a conceptualization) that identifies potential preferential flow paths due to the ancient fluvial depositional environment and describes the different aquifer zones from which the various affected supply wells produce water. Apparently the geologist for STPUD has developed such a conceptualization related to some of the Lukins Brothers and Tahoe Keys wells. While several paragraphs in the Draft Order acknowledge the potential for lateral dispersion to increase the plume width, little or no discussion or requirements are included related to potential changes in the vertical extent of the plume. Development of a site conceptual model (SCM) and a description of the different vertical zones from which supply wells produce groundwater within the required Technical Report would be extremely valuable in developing an appropriate understanding of the extent of impacts and relevant and applicable remedies.

   Prosecution Team Response: Water Board staff agrees with the comment. Revised Ordered Paragraph 3.2.6 requires identification of depositional environments and preferential flow paths of the different aquifer zones from which the various affected supply wells produce water.

LAHONTAN MEMO

TO: Patty Z. Kouyoumdjian
Executive Officer
Lahontan Regional Water Quality Control Board

FROM: Lisa Dernbach
Senior Engineering Geologist (Specialist)
Lahontan Regional Water Quality Control Board

DATE: July 18, 2016

SUBJECT: ***Response to Comments*, Lake Tahoe Laundry Works Cleanup and Abatement Order (CAO) R6V-2016-PROP**

The Lahontan Regional Water Quality Control Board's Prosecution Team (Prosecution Team) is providing responses to stakeholder comments and recommendations to the Advisory Team for revisions to the proposed subject line CAO. Comments were received from Fox Capital Management Corporation; PES Environmental, Inc. on behalf of Commerce Bank for Seven Springs Limited Partnership; South Tahoe Public Utility District; Lukins Brothers Water Company; Tahoe Keys Water Company; and Andrew A. Kopania.

The Prosecution Team reviewed all comments received and where appropriate, made revisions to the September 15, 2016, version of the proposed CAO. Comment letters may be viewed at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/enforcement/laundry_works_cao.shtml.

I. Hogan Lovells on behalf of Fox Capital Management Corporation Comments

Though Fox Capital articulates the relevant legal standard is the "substantial evidence" standard citing to Order No. WQ 85-7 In the Matter of the Petition of Exxon Company, U.S.A., et al, the Prosecution Team notes that this is the applicable standard upon review by the State Water Board and upon a petition for a writ of mandamus as discussed in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-515. Substantial evidence means "credible and reasonable evidence." Order No. WQ 93-14 In the Matter of the Petition of Sanmina Corp. The appropriate evidentiary standard is the preponderance of the evidence. In other words, the Prosecution Team must convince the trier of fact, the Water Board, that its version of a fact is more likely than not the true version. Appendix B of the Revised Proposed Order contains a more detailed explanation regarding the burden of proof for administrative proceedings.

1. There is no basis for naming Fox or Century 73 as a Discharger under the Water Code. The Proposed Order fails to provide the substantial evidence that is required in order to hold a former property owner liable under Section 13304 of the Water Code.

Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in paragraphs 11 through 15 and Appendix B of the Revised Proposed Order.

2. The Regional Board has not produced substantial evidence of a discharge during a Fox Party's ownership of the South Y Site.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

3. The Regional Board has not produced substantial evidence that Century 73 or Fox knew or should have known of a discharge.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

4. The Regional Board has not produced substantial evidence that Century 73 or Fox could have prevented a discharge.

   Prosecution Team Response: The Revised Proposed Order correctly identifies Fox Capital as a discharger as explained in the revised findings contained in Appendix B.

5. Even if the Regional Board could establish that Century 73 or Fox is considered a discharger under Section 13304, Fox still would not be liable for off-site work under the Proposed Order because the Regional Board has not shown that the off-site contamination migrated from the South Y Site.

   Prosecution Team Response: As stated in revised Findings 2, 4, 19, and Appendix A in the Revised Proposed Order, PCE has been detected in many off-site locations[1] that are within the range of downgradient groundwater flow from the LTLW site. Finding 31 is revised to state that results of the January 2016 air sparge test show inconsistent remedial effectiveness across the LTLW site, leading to off-site PCE migration. Based on the principles of hydrogeology and contaminant transport properties and groundwater data from wells downgradient of the Site, and the fact that no other PCE source has been identified in the Regional Board's aquifer investigations, the Prosecution Team contends that it has met its evidentiary burden, that PCE detected in downgradient off-site wells is from past and ongoing releases at the Site. Fox asserts that the air sparge performance test conducted in early 2016 shows that PCE is not migrating off-site. However, as noted in the Prosecution Team's Comments on the Air Sparge Performance Test dated May 24, 2016, the performance test cannot be reasonably relied upon to support the contention that the remediation system is providing complete coverage to remediate the solvents in soil and groundwater. Fox Capital and Seven Springs rely on results from three air sparge wells that are not necessarily representative of all 27 air sparge wells. Additionally, the performance test reflects data during the most optimal performance of the system at the early stages of air sparge expansion rather than during steady state conditions. While some PCE is contained on-site from remediation activities, the data is insufficient to support the contention that remediation is providing complete coverage. PCE is probably not being fully contained by the current remediation system. The detection of concentrations of PCE in downgradient off-site

[1] OS-1, Hurzel monitoring well, 883 and 903 Eloise Avenue, Lukins #4, TKWC #2, MW-4A/B

wells along with the principles of fate and transport allow Water Board staff to make reasonable inferences that support the finding that some amount of PCE migrated, and continues to migrate, off-Site despite remediation efforts..

6. The distribution of PCE in groundwater does not support the Proposed Order's conclusions of the Site being the source for off-site PCE migration. On-site PCE concentrations in the shallow groundwater were high compared to middle zone groundwater where concentrations are lower. The PCE distribution in off-site groundwater is the opposite: concentrations are higher in the middle-zone compared to shallow groundwater.

Prosecution Team Response:
Text books and research articles[2] on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and/or influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table.

The reason for VOC detection at different depths in the aquifer at off-site locations compared to the LTLW Site is explained in several ways. The first explanation is depicted in the enclosed figure[3] showing a cross section of DNAPL fate and transport in groundwater. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L) were detected near the water table at the source area on the LTLW Site but in middle-depth groundwater at boring GW-7,[4] located approximately 110 feet north in Lake Tahoe Boulevard.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW Site during the 1970s, it would have been affected by the pumping of nearby supply wells until they were turned off in 2001[5]. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. This would explain PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-6 (between the Napa Auto and LTLW sites) and also PCE detections beneath the Napa Auto site at 48 ft bgs. After the Clement well ceased operating in 2001, groundwater flow would have shifted to a more northerly direction as seen today. In 2004, 1,200 µg/L PCE was detected in middle-depth groundwater at boring GW-9 <u>on the LTLW site</u> in the direction towards the South Y intersection. While Fox and Seven Springs contend **high PCE concentrations exist only in shallow groundwater on the LTLW site, theories of fate and transport support a contrary conclusion.** The Fourth Quarter 2009

[2] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research
[3] 1989 Waterloo Centre for Groundwater Research
[4] 230 µg/L PCE at 44 feet in GW-7 in September 2004
[5] February 10, 2016 letter by Ivo Bergsohn, South Tahoe Public Utility District

Groundwater Monitoring Report for the LTLW Site stated, "Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data." This inconsistency can be explained by theories of fate and transport for solvent contamination. The Prosecution Team contends that the high levels of VOCs detected in the middle depth of the aquifer beneath the LTLW Site, Lake Tahoe Boulevard, and the Napa Auto and Big O sites are from PCE discharges originating from the LTLW Site.

7. SVE/GASS (soil vapor extraction/groundwater air sparge system) has successfully removed VOCs from the subsurface and contained the VOC plume on-site.

   Prosecution Team Response: Water Board staff does not agree with this statement. Our May 24, 2016 letter responding to the January 2016 air sparge test results, states that the remediation zone-of-influence was inconsistent in each of the three air sparge wells tested and suggested inconsistent remediation across the site. Also, smaller radius-of-influence under steady state conditions than originally calculated would mean that remediation coverage is not overlapping at most or all locations, allowing for plume migration between remediation points. Preferential pathways for air flow, such as beneath low permeability layers, indicate areas above the low permeability layer are not subject to remediation. The air sparge test results are incomplete in that there are no monitoring wells between LW-MW-2S and LW-MW-5S (approximately 125 feet apart) and between LW-MW-5S and LW-MW-13S (approximately 170 feet apart). This gap in data points is far too large to support any assertion that contaminants in groundwater are contained on-site. These issues cause the Water Board to conclude that complete coverage at the Site is lacking. It is likely that remediation is inconsistent and inadequate across the Site as detailed in its Comments on Air Sparge Performance Test letter dated May 24, 2016. While on-site monitoring data indicates a certain degree of plume containment over the years, without a complete set of monitoring data that covers that large gaps in monitoring wells, the Prosecution Team continues to assert that the PCE concentrations in OS-1 and other off-site monitoring wells downgradient are attributable to the Site.

8. Both groundwater flow data and groundwater quality data indicate that LTLW is not impacting the Hurzel Property or monitoring well OS-1.

   Prosecution Team Response: Water Board staff does not agree with this statement. Monitoring reports since 2010 show groundwater flow from the LTLW Site as ranging from north-northwest to northeast. A majority of these reports state the flow direction is "generally north" which is why in 2009 Water Board staff accepted the location of off-site monitoring well OS-1 as being slightly east of due north of the release location. In addition, the detection in 2004 of 1,200 µg/L PCE in middle-depth groundwater at boring GW-9 on the LTLW Site in the northeast direction indicates both groundwater flow direction and impacted quality towards the South Y intersection. Since remedial actions did not begin until 2010, PCE detected in GW-9 in 2004 would have migrated off-site approximately half a mile[6] by then, well past OS-1 and the Hurzel property. Thus, data exists in monitoring reports and past investigation reports showing that PCE from the LTLW site has flowed towards the South Y intersection and currently flows towards OS-1.

[6] Assumes a conservative groundwater rate of 1.2 feet per day over six years

9. (The Proposed Order) contends that the South Y Site is a source of the Off-site Contamination in part because it believes there are no other sources of PCE in the vicinity, our review found that the Regional Board has not fully evaluated other possible sources of the Off-site Contamination. These sources include the Lakeside Napa Auto facility, the former Big O Tire facility, and the former Exxon service station (current Transit Terminal).

   Prosecution Team Response: Other potential PCE sources in the vicinity of the LTLW have been adequately evaluated and found to not be contributing to PCE impacts affecting groundwater quality. Past investigations at the Napa Auto site and the Big O site were deemed adequate and results indicated no PCE sources existed. As explained in the Water Board's response to comments for No Further Action letters for the Napa Auto site and the former Big O Tires site, the source of PCE in groundwater beneath these sites was determined to be from off-site in the upgradient flow direction, that being the LTLW site. The same is true for the former Exxon Station, which was located decades ago on the corner of Lake Tahoe Boulevard and Emerald Bay Road. Past groundwater investigations conducted for the former South Y Shell Station, located immediately to the southeast of the Exxon Station, included sampling adjacent to the latter location. The investigation found that PCE concentrations in the tens of micrograms per liter increased in the upgradient flow direction towards the southwest and did not increase as groundwater flowed beneath the former Exxon site. At the same time, groundwater investigations at the LTLW Site in 2003 detected PCE concentrations in the hundreds of micrograms per liter beneath the Site. This information indicates the former Exxon Station was not a source contributing to PCE concentrations in groundwater. As reasonable investigations have been conducted over time in the South Y area, only the LTLW site was found to be a source of PCE contamination in soil and groundwater. All other nearby properties have not been shown as sources of PCE contamination (Appendix A).

10. The work required by the Proposed Order is not necessary because Seven Springs and Fox have been remediating the South Y Site since 2009 (sic), and that remediation has been effective in reducing the on-site PCE concentrations and containing the contamination within the boundaries of the South Y Site.

    Prosecution Team Response: Water Board staff agrees that PCE concentrations in groundwater have reduced over time since operation of the SVA/GASS remediation system began in 2010 but that should not be confused with plume containment. As discussed in our May 24, 2016 response to the January 2016 air sparge test, the results indicate inconsistent remediation in air sparge wells across the Site. Smaller radius-of-influence under steady state conditions than originally calculated would mean that remediation coverage is not overlapping at most or all locations, allowing for plume migration between remediation points. This explains why PCE concentrations are detected at off-site monitoring well OS-1 every quarter and at other off-site monitoring well locations at other times.

    Review of remediation system data in quarterly monitoring reports finds the current remediation system has likely reached its effectiveness as designed. Data indicates that where remedial actions have reached solvents in soil during the five years of operation, they are likely cleaned up. But where remedial actions have not been able to reach soil contamination, such as in or above low permeable layers and between radii of influences under steady state conditions, contaminants remain a constant source for groundwater

contamination. It is apparent to Water Board staff that additional remedial actions are needed to remediate solvent sources remaining on-site and contain the contaminant plume migrating in groundwater to off-site locations.

11. The Proposed Order's requirements for containment are completely unnecessary:

- The remaining contamination at the Site is limited to a small area in the vicinity of LW-MW-1S and LW-MW-5S and concentrations of PCE in all other wells at the site are below the MCL of 5 µg/L.

Prosecution Team Response: The Water Board has not been provided data verifying the accuracy of the above statement. Spacing between monitoring wells along Lake Tahoe Boulevard is too great to definitely state that contamination on-site is limited to certain small areas. Additionally, no soil samples at previously identified PCE source areas have been collected since the remediation system began operating in 2010. Therefore, the extent of remaining contamination at the Site is unknown. This fact is evident when the remediation system is off, monitoring reports show increases in soil gas data indicating PCE sources continue to exist beneath the building footprint as well as beneath the parking lot.

- The zone of influence of the SVE/GASS remediation system at the site effectively recludes any remaining contamination from migrating off-site.

Prosecution Team Response: See response to Item 7.

- The Regional Board's off-site investigation performed in 2015 did not find any contamination contributable to the site, which confirms no additional containment is needed because PCE is not migrating from the site.

Prosecution Team Response: The Water Board's 2015 PCE investigation did find PCE in off-site monitoring wells. Up to 150 ug/L PCE was detected in MW-4B and 14 ug/L PCE was detected in MW-4B, located on Eloise Avenue near the Fifth Street intersection. This monitoring well location is due north of OS-1 and within the calculated range for the groundwater flow direction from the LTLW site. Off-site investigations are needed to evaluate whether PCE detections in MW-4A/B originated from the LTLW Site and, if so, the fate of their migration since the time samples were collected in November 2015. As described further in Hogan Lovells Response to Comments #6, the groundwater data and theories of fate and transport support more likely than not that the Site is the source of PCE in off-site monitoring wells.

- The replacement water requirement is unfounded as nothing in the Proposed Order indicates that there are any impacted supply wells downgradient of the site.

Prosecution Team Response: This requirement has been removed from the order since there were no directives for Fox Capital and Seven Springs to comply with. If the determination of impacted supply wellsis made after off-site investigations of the extent of PCE migration in groundwater are conducted. the law allows the Water Board to require that replacement water be provided by parties responsible for the unauthorized discharge. In this instance, a new order will be issued.

12. The evidence does not establish that the off-site contamination is associated with releases from the LTLW. The Proposed Order's investigation and corrective action requirements are unwarranted.

    Prosecution Team Response: The Prosecution Team asserts that it has met its evidentiary burden, that PCE in off-site wells is associated with the releases from the Site. Investigation and corrective action requirements are warranted since the Prosecution Team has established based on groundwater data that demonstrates the PCE plume is not being contained on the LTLW site. For the reasons discussed in the above responses, reasonable inferences support the contention that the groundwater plume is probably continuously migrating from the Site despite remedial action efforts. At the very least, the Dischargers must investigate the horizontal and vertical extent of PCE contamination in groundwater which migrated from the Site when no remedial systems operated for six months in 2013 and boundary monitoring wells LW-MW-2S and LW-MW-5S showed higher than normal PCE levels (tens and hundreds of micrograms per liter versus single digits) for nine months. The resumption of the SVE/GASS in November 2013 would have had no effect on containing the PCE plume migrating with groundwater off-Site, which now poses a threat to off-site receptors.

13. A number of mis-statements are identified in the Proposed Order and are attached as Exhibit JJJ.

    Prosecution Team Response: Comment noted. The Prosecution Team reviewed all of the comments provided in Exhibit JJJ and, where appropriate, have suggested revisions in the Revised Proposed Order.

II. PES Environmental (on behalf of Seven Springs Limited Partnership and the Commerce Bank) Comments

1. The Order presents an inaccurate and misleading depiction of the regulatory history of the Site, leading the reader to believe that Seven Springs and Fox have not been involved in a long, extensive, and objectively successful cleanup of the Site. Paragraphs 2-8 briefly describes the basic history of the Site without mentioning the considerable efforts made by Seven Springs to address the presence of VOCs and be responsive to the RWQCB's concerns since 2003…A brief history of the responsible parties ongoing cooperation is provided.

   Prosecution Team Response: The Revised Proposed Order and Appendix A accurately describe the regulatory history of the Site and the involvement by Fox Capital and Seven Springs. The Revised Proposed Order includes the same dates and corrective actions as those listed in the comments and implemented at the Site but without all the details. At no time does the Revised Proposed Order state or indicate that Fox Capital and Seven Springs refused to cooperate when completing corrective actions ordered by the Water Board. But as suggested, we have added a statement in Finding 10 concerning Fox Capital and Seven Springs' compliance with past Water Board directives.

2. Items 9 through 17 draw the conclusion that groundwater affected with PCE has migrated from the Site and affected off-Site well OS-1 and other wells located…up to 2,000 feet northeast of the Site…Based on (the) distribution of PCE in groundwater and the predominant direction of groundwater flow (north-northwest), it is not reasonable to

assume PCE-affected groundwater from the Site is the source of PCE detected in off-Site wells to the northeast.

Prosecution Team Response: See responses to Hogan Lovells comments #5 through #9.

3. For Paragraphs 18 through 23…Seven Springs objects to the proposed closure of (the Lakeside Napa Auto and Big O Tires) sites despite evidence indicating that these sites, not LTLW, are likely sources of PCE contamination north of Lake Tahoe Boulevard.

   Prosecution Team Response: Objections to the closure of Napa Auto and Big O Tires sites were noted in comments received for the proposed Notice of No Further Action for each property. The response to comments describe in detail why each site was considered by Water Board staff to not be a source of PCE contamination affecting groundwater quality. The Prosecution Team has recommended the Executive Officer issue No Further Action letters for these sites.

4. In Paragraph 26, the Order identifies Seven Springs as a responsible party pursuant to section 2720. This section of the regulations is inapplicable to this matter and Seven Springs objects to its application here.

   Prosecution Team Response: The Revised Proposed Order removes references to Section 2720 of Title 23 of the California Code of Regulations.

5. In Paragraphs 27 through 34, the Order indicates the SVE/GASS shutdowns resulted in an increase in PCE concentrations in groundwater…The increases in PCE concentrations described in Paragraph 32…reflect PCE increases in LW-MW-1S, which is located on-Site and is not a downgradient well. The extent of the PCE concentrations increases should be viewed in the context…in the downgradient wells. Wells LW-MW-2S and LW-MW-5S are located on the northern edge of the Site and are the wells closest to and downgradient of well LW-MW-1S. Concentrations of PCE in wells LW-MW-2S and LW-MW-5S following the SVE/GASS shutdown in 2013 were measured at maximum values 86 ug/L and 150 ug/L, respectively. It should be noted that these maximum values were limited in duration to one quarter and the PCE levels measured since those events have been below or near the MCL. The sustained reduction in PCE concentrations is directly related to the successful operation of the SVE/GASS, which continues to operate at the Site. Therefore, the monitoring data contradicts the assertion of large impacts to off-Site groundwater reflected in the Order.

   Prosecution Team Response: See responses to Hogan Lovells comments #7, #10 through #12. The monitoring data does not contradict, rather it shows effective remediation immediately upgradient of those monitoring wells. However, based on PCE concentrations in downgradient off-Site monitoring wells and principles of fate and transport along with the direction of natural groundwater flow, PCE is likely migrating off-Site from gaps in the remediation system and between monitoring well spacings.

6. In Paragraph 38 of the Order, the RWQCB implies that detection of PCE, TCE, and DCE in off-Site (supply) wells…have been affected by VOC-affected groundwater migrating from the Site. Groundwater remediation has been conducted at the Site since 2010, and with few exceptions since 2012 the PCE concentrations detected in (on-Site) downgradient wells have been close to or below drinking water standards. Furthermore,

the distance of these affected off-Site wells from the Site and the direction of groundwater flow from the Site demonstrates that those impacts are not related to the migration of PCE-affected groundwater from the Site.

Prosecution Team Response: See responses to Hogan Lovells comments #5 through #10.

7. Seven Springs objects to the statements made in the Order in this section alleging that Seven Springs and Fox have not contained PCE on-Site and is responsible for PCE contamination migrating off-Site. The Order presents no foundation for these statements, nor has any reasoned basis for holding Seven Springs and Fox accountable for PCE contamination in the area.

   Prosecution Team Response: See responses to Hogan Lovells comments #5 through #10.

8. …in Paragraph 47, the Order proposes five corrective actions, including containment, off-site investigation, active cleanup and abatement of on-site contamination, off-site containment and remediation, and monitoring and reporting obligations. No reasonable evidence has been presented by the RWQCB suggesting that existing on-Site cleanup is inadequate, given that monitoring reports consistently show decreasing levels of contaminants on Site, or that any off-Site containment and remediation is necessary or required…

   Prosecution Team Response: See responses to Hogan Lovells comments #11 and #12.

9. Item No. 2 of the Orders section…requires that Seven Springs and Fox, within 30 days of the Order, submit a work plan…proposing a method, other than SVE/GASS or (the) ozone sparge system to contain migration of chlorinated VOCs in groundwater within the Site. Seven Springs proposes to negotiate with the RWQCB alternate methods of achieving its desired results…

   Prosecution Team Response: As stated in Water Board May 24, 2016 letter about the results of the January 2016 air sparge test, the remediation system has likely reached its effectiveness as designed. Data indicates that where remedial actions have reached solvents in soil during the five years of operation, they are likely cleaned up. But where remedial actions have not been able to reach soil contamination, such as in or above low permeable layers and between radii of influences under steady state conditions, contaminants remain a constant source for groundwater contamination. It is apparent to Water Board staff that additional remedial actions are needed to remediate solvent sources remaining on-site and contain the plume migrating in groundwater to off-site locations. The Water Board encourages the parties to consider the types of alternate technologies that can be applied at the Site to contain the PCE plume on-site and continue clean-up actions for remaining contamination in soil and groundwater.

III. South Tahoe Public Utility District Comments

1. Finding No. 2. Numerous contamination assessment investigations have been performed throughout the South Y Area. Many of the contamination assessment reports from these investigations include boring logs and geologic cross-sections that were used to delineate the extent of MtBE contamination in groundwater. Review and evaluation of

this data should be performed to better define the hydro stratigraphy below the Facility and through the affected off-site areas. The LRWQCB should consider adding this information to the existing paragraph.

Prosecution Team Response: Comment noted. Information of boring logs and geologic cross sections from other investigations has been added to Appendix A of the CAO.

2. Finding No. 3. Last sentence- In order to acknowledge the District's installation of a packed column air stripper at the Clement Well in 1991 to remove PCE contamination from groundwater, consider changing to: …well owners incurred significant costs to either add wellhead treatment, replace the wells or hook-up to municipal water supply.

   Prosecution Team Response: Comment noted and acknowledged in the supply well history described in Appendix A.

3. Finding No. 4. It would be helpful to add the locations of properties where site investigations have been performed to identify the potential sources of PCE contamination to Attachment 1.

   Prosecution Team Response: The finding has been revised to provide more types of sites that have undergone groundwater investigations to identify PCE sources. The finding's purpose is to demonstrate the Water Board's due diligence in conducting past investigations and requiring investigations of others. This shows that the Dischargers are not being unfairly singled out for being required to implement corrective actions for cleanup and abatement of PCE contamination. Some of the locations of properties that have performed investigations in the past are shown on the map in Attachment 2.

4. Findings No. 9. Suggest adding the screen interval depths to the PCE Concentration table.

   Prosecution Team Response: This finding has been updated (now Finding 17) to include third quarter 2015 site data and the screen interval of the listed wells.

5. Findings No. 14. The District's Clement Well was taken off-line due to MtBE contamination in 2001. The District abandoned the Julie, South Y and Tata No. 4 wells in 2006. As these wells have been removed from service, variations in groundwater flow direction reported in groundwater investigations completed since 2008, should not be attributed to the operation of these public water supply wells.

   Prosecution Team Response: Comment noted. The termination of the District's municipal wells over time and their affect upon groundwater flow have been clarified in the Revised Proposed Order.

6. Finding No. 15. Shallow aquifers throughout the South Y Area contain various soil materials ranging from gravelly sands to silty fine sands, silt and clay. The aquifer characteristics of these differing materials can have a substantial effect on groundwater flow paths and the dispersion of PCE contamination through the aquifer. Aquifer heterogeneity should also be considered when estimating groundwater plume dimensions in the South Y Area. The probability that chlorinated hydrocarbons have

sorbed to fine grained material must also be considered when the persistence of PCE in the aquifer is apparent.

Prosecution Team Response: Comment noted. The geologic characteristics of the aquifer and the likely effect upon PCE contamination have been better described in the Revised Proposed Order.

7. Finding No. 27. The District has four (4) public water supply wells neighboring the South Y Area which have been affected by PCE groundwater contamination (Clement, Julie, South Y and Tata Well No. 4). Three (3) of these wells have been destroyed; the fourth well (Clement) is presently inactive. In 1997, the District in conjunction with LRWQCB began investigations to identify the potential source(s) of PCE contamination found in the Clement Well. Findings of this investigation indicated that PCE detected in the Clement Well was likely moving through water-bearing zones at depths greater than 48 feet. Further investigations have shown that highest concentrations of PCE were detected in water samples collected from observation wells screened through the lowest portion of the Clement Well production zone at a depth of approximately 115 feet. The vertical extent of PCE contamination in the Clement Well shows that limiting remediation efforts to the "shallow groundwater area" is not likely adequate to protect off-site receptors affected by this contamination. Remediation efforts should extend to depths that include deeper water bearing zones pumped for drinking water supply by nearby public and private water supply wells.

   Prosecution Team Response: Comment noted. The main findings of the 1997 Clement Well pump test have been added to history in Appendix A to aid in better hydrogeologic understanding of PCE capture by municipal wells. The Revised Proposed Order requires the parties to investigate the vertical extent of off-Site PCE contamination in the aquifer relative to the screened intervals of supply wells.

8. Finding 28. It is unclear how soil vapor extraction and air sparge remediation systems (SVE/AS) deployed at the Lake Tahoe Laundry Works (LTLW) provide any effective means of hydraulic control to prevent off-site migration of the PCE contaminant plume. The LRWQCB should require proof of hydraulic control as a condition of continuing remediation efforts at the LTLW. If those efforts prove to be ineffective, then alternate hydraulic control methods should be required.

   Prosecution Team Response: When designed properly, overlapping air sparge wells zone-of-influences have the ability in mostly homogeneous aquifers to remediate VOC plumes in slow moving groundwater before migrating off site. It appears from the data in the January 2016 Air Sparge Test that the aquifer beneath the Site is more heterogenous than homogenous, allowing for inconsistent remediation. Therefore, the Findings section has been revised to provide more rationale about the inabilities of the current remediation systems to clean up remaining solvent sources in soil and contain plume migration on site. The order section has also been revised to be more clear that an alternate method for plume containment, other than the current systems in place, is required along with an off-site monitoring program designed to better evaluate the potential for off-site plume migration.

9. Finding 31. The SVE/AS system was replaced with a "pulsed" ozone sparge system in January/February 2013. Ozone sparge systems lack hydraulic control. If improperly applied, operation of the ozone sparge system could adversely impact groundwater flow directions and gradients, increasing the rate of contaminant plume movement.

Operations data, including system run times, injection pressures, sparge flow rates and local groundwater elevations should be collected on a regular basis and reported to the LRWQCB to insure that the LTLW system is being operated in an appropriate manner.

Prosecution Team Response: See response to the District's comment 8.

10. Finding 32. Operation of ozone sparge systems often show short term "spikes" in dissolved contaminant concentrations which are often attributed to the release of adsorbed-phase contaminants to the dissolved phase. This may also explain the 100-fold increase in PCE concentrations observed at the LTLW site (LW-MW-1S) in July 2013.

    Prosecution Team Response: Water Board staff agrees with the comment that remediation spikes are sometimes seen immediately following a remedial action such as the operation of the ozone sparge system. In this case, the ozone sparge system operated for five days in late-January to early February 2013 and a spike in concentration should have been seen during first quarter groundwater monitoring in March 2013. Instead, no increase in PCE concentration was seen in any of the on-site monitoring wells. Rather, the first PCE spike in LW-MW-1S and all but one monitoring well was seen in July 2013, even though no remedial action occurred during the prior quarter. This spike and others in following quarters appears to coincide during the time when remedial actions were lacking at the site and groundwater was being affected by remaining soil contamination.

11. Finding 34. Proof of hydraulic control should be added as a condition of continued operation of the remediation system. This could be provided in part, using remediation system logs showing site- appropriate AS flow rates and injection pressures; and potentiometric maps showing groundwater flow directions and hydraulic gradients during operation.

    Prosecution Team Response: See response to the District's comment 8.

12. Finding 41. Loss of water production resulting from the impairment of public water supply wells operated by LBWC and the Tahoe Keys Water Company (TKWC) has caused these water systems to enter into Mutual Aid and Assistance Agreements with the District. These agreements provide for the delivery of drinking water from the District's water system through an inter-tie on an as-needed and available basis. The LRWQCB should request financial assistance from the Discharger for this replacement water.

Prosecution Team Response: Comment noted. This finding has been revised to include the two other water purveyors having to enter into Mutual Aid and Assistance Agreements with the District. The determination of impacted supply wells may occur after off-site investigations of the extent of PCE migration in groundwater are conducted. Should an active supply well be impacted with PCE from the LTLW site, the law allows the Water Board to require that replacement water be provided by parties responsible for the unauthorized discharge.

13. The LRWQCB should also consider requiring the Discharger to evaluate the effect from operation of the ozone sparge system at the Facility, on the mobilization of adsorbed PCE contamination to groundwater. This evaluation should attempt to provide a mass–balance showing the amount of contaminant transferred from the absorbed to dissolved-phase; the amount of contaminant mass destroyed by the ozone sparge system; and the remaining contaminant mass released to groundwater. The findings of this evaluation should be provided in the technical report.

    Prosecution Team Response: Comment noted. The Dischargers are currently required to provide mass balance calculations in quarterly monitoring reports. The First Quarter 2016 Groundwater Monitoring and Remediation Status Report calculates an estimate residual PCE mass in vadose zone vapor of 0.0026 pounds and in groundwater of 0.005 pounds. The latter calculation is based on monitoring well data which Water Board staff believes is too low and not fully representative of on-Site conditions given the large spacing between some wells, such as those along Lake Tahoe Boulevard (LW-MW-2S, LW-MW-5S, and LW-MW-13S). This requirement will continue in the future regardless of the type of remedial action implemented at the LTLW site.

14. Finding 46. There is a long and established history of public water supply wells used for drinking water production located in and around the South Y Area. Many of these wells are either inactive or have been destroyed due to impairment by either MtBE and/or PCE groundwater contaminant plumes. Supplemental corrective actions should be required to protect public health and restore the drinking water aquifer through this area for municipal and domestic supply.

    Prosecution Team Response: Comment noted. The Findings and Orders sections have been supplemented to make it clear that all parts of the drinking water aquifer affected by solvent contamination from the LTLW site must be cleaned up to background concentrations (not just to drinking water standards) to restore it for the beneficial uses.

15. Orders: General Comment: The LRWQCB should require the Order to address all groundwater contamination, not just contamination in down-gradient groundwater. For example, the current order only appears to require the Dischargers to provide replacement water or service to well users' down-gradient of the Facility. The Order itself, however, suggests that the contaminated groundwater can move in multiple directions, not just down gradient.

    Prosecution Team Response: Comment noted. The Revised Proposed Order clarifies that the Dischargers must investigate, contain, and clean up and abate all solvent discharges from the LTLW site affecting water quality in the aquifer in addition to those in thedowngradient flow direction.

16. Item 1: Require analyses showing hydraulic containment of the PCE contaminant plume prior to resuming "continuous" operation of the SVE/AS system.

Prosecution Team Response: The purpose of this Ordered Paragraph is to require the Dischargers to operate the current remediation system as previously approved by the Water Board while other corrective actions are being considered as per the Revised Proposed Order. The continuous operation of the AS/SVE also serves a dual purpose by preventing the accumulation of indoor air vapor inside buildings that has the potential to occur when soil gas concentrations spike when remediation is down for too long at the site. Order #2.1.1 requires the Dischargers to propose a monitoring program different than what's currently in place to verify on-site plume containment.

17. Item 2.1.1: Boundary Containment Monitoring should be established at the leading edge of the PCE groundwater contaminant plume. The presence of PCE contamination in LBWC # 4, #2 and #5 wells; and TKWC #2 well shows that the leading edge of the contaminant plume is likely located north of Patricia Lane. Boundary Containment Monitoring should be determined after the full lateral and vertical extent of the PCE contaminant plume has been adequately delineated.

    Prosecution Team Response: Comment noted. The Revised Proposed Order already states that an off-site corrective action plan (CAP) shall be submitted following definition of the extent of the solvent plume in groundwater. The order has been revised to clarify that off-site containment and monitoring of the solvent plume must occur to prevent future impacts to domestic and municipal supply wells rather than "north of Patricia Lane."

18. Item 4.1: The presence of PCE contamination in LBWC # 4, #2 and #5 wells; and TKWC #2 well shows the leading edge of the contaminant plume is likely located north of Patricia Lane. The off-site investigation should include areas north of 883 Eloise Avenue to define the extent of PCE contamination at depths consistent with the perforated intervals of the neighboring public and private water supply wells.

    Prosecution Team Response: We agree with the comment and have revised Order #4 to require off-site investigations to define the extent of PCE contamination at depths consistent with the perforated intervals of the public and private water supply wells, out to the TKWC #2 well on Venice Drive.

19. Item 4.3.6: Geologic sections from the Facility to the extent of groundwater sampling are important tools to show the full lateral and vertical extent of contamination. These should be made a requirement of the technical report and not an "if applicable" option.

    Prosecution Team Response: We agree with the comment and have deleted the phrase, "if applicable."

IV. Lukins Brothers Water Company Comments

1. Historical groundwater sample data reflects only shallow groundwater sampling has been completed at the site, while public water systems are discovering chlorinated hydrocarbons well above the MCL at well depths from 150' to as deep as 400'. This suggests that contamination originating at the subject site has migrated much deeper than the current shallow sample wells. Off-site investigations need to be completed to determine both the vertical and lateral extent of contamination. The extent of long term

damage to groundwater aquifers needs to be determined. Impacted aquifer regions need to be investigated at all affected depths so that proper remediation can begin.

Prosecution Team Response: Water Board staff agrees with the comment. The Findings section and Appendix A has been revised to include more history of supply wells impacted with PCE. Ordered Paragraph 3 has been revised to require off-site investigations at depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

2. Recent quarterly reporting by the Parties responsible for remediation of the subject site to Lahontan indicates that contamination still exists in soil despite 5 years of remedial actions. This source is alloeing(sic) groundwater contamination to continue to be generated every day. It would seem reasonable to consider alternate remedial measures for soil such as excavation of contaminated material and/or thermal treatment of contaminated area to quickly remediate the source and to prevent ongoing impacts to groundwater.

   Prosecution Team Response: Water Board staff agrees with the comment. Finding 31 has been revised stating that the current AS/SVE system is no longer effectively remediating contaminants and is not containing the plume from off-site migration. Ordered Paragraph 2 has been revised to more clearly state that an alternate method for plume containment, other than the current systems in place, is required along with an off-site monitoring program designed to better evaluate the potential for off-site plume migration.

3. In June of 2015, Fox Capitol Management Corporation and Seven Springs Limited Partnership entered into a stipulation agreement with Lahontan whereby Seven Springs and Fox Capitol agreed to provide replacement water to the well-owners located at 883 and 903 Eloise Avenue, South Lake Tahoe, as a result of domestic well water data indicating the presence of chlorinated hydrocarbons. Although all Parties agreed that neither Fox Capitol nor Seven Springs admitted to any liability under or any violation of the California Water Code or any other federal, state, or local law or ordinance, both the test results and the action to provide replacement water implies that the plume from 1024 Lake Tahoe Blvd. has migrated as far as Eloise Avenue, if not further. This further supports the need to determine the actual off site migration of the plume beyond Eloise since the time of discovery, both vertically and horizontally.

   Prosecution Team Response: See response to District Item 18.

4. Lahontan investigations have not been successful in identifying additional source(s) of PCE contamination affecting west side supply wells. Seven Springs and Fox Capitol, as the named source, should be responsible for determining the actual migration of PCE through the entire aquifer. We feel it would be in the best interest of all parties if any additional investigations are conducted in a similar fashion to the previous USA gasoline/MTBE investigation in South Lake Tahoe.

   Prosecution Team Response: See response to District Item 18.

5. According to the text of the proposed CAO, Fox Capitol Management Corporation and Seven Springs Partnership do not believe that the PCE contamination detected in various downgradient wells originated from the subject site. If this is their position, then they should complete the vertical and horizontal delineation of the plume that does emanate from the subject site to prove or disprove their belief. Completion of this delineation may also have the desired effect of eliminating or reducing the need for Lahontan to conduct expensive groundwater investigations looking for other sources.

   Prosecution Team Response: See response to District Item 18.

6. Information provided to the Water Board indicates that between February 5 and August 6, 2013, the ozone sparge system at the subject site had reportedly malfunctioned and required repairs. As a result of six months of down time, PCE concentrations in groundwater rose from 5.9 ppb to 490 ppb. This shutdown potentially created a new discharge from the 1024 Lake Tahoe Blvd. site. A complete investigation into this discharge should be conducted to determine both the horizontal and vertical delineation of contamination, and how it relates to the existing contaminant plume. In addition, Seven Springs and Fox Capitol should be responsible for off-site remediation associated with discharges from the subject site.

   Prosecution Team Response: Water Board staff agrees with the comment. Revised Finding 31 states the need for off-site investigations to define, at least, the extent of impacts to groundwater from contaminants that migrated away from the site in 2013. Ordered Paragraph 3 has been revised by adding more details of what a workplan for off-site investigation should look like.

7. Remediation systems need to be developed away from as well as at the original contamination site, as was done for the USA Gas Station. While efforts are being made to prevent any further discharge from leaving the site, past discharges that are migrating through the aquifer are continuing to contaminate the drinking water supply in the entire South Y area which jeopardize public health and safety. Remediation of the entire aquifer is the only way to attempt to contain the movement of the plume.

Prosecution Team Response: Water Board staff agrees with the comment. Revised Ordered Paragraph 4 now includes a statement that the off-site corrective action plan (CAP) must also propose off-site plume containment to prevent future impacts to domestic and municipal supply wells.

V. Tahoe Keys Property Homeowners Association Comments

1. Provides four comments on URS' January 19, 2016 PCE Investigation report.

   Prosecution Team Response: Comments are noted concerning the January 19, 2016 PCE Investigation Report and recommendations for future investigation.

2. Finding No. 3: Requests that its Well #2 be considered for inclusion as a municipal water supply well that continued to operate following the installation of PCE treatment facilities in July 2012.

   Prosecution Team Response: Comment noted. This finding has been revised to include the TKWC Well #2 as a supply well impacted with PCE.

3. Finding Nos. 28 and 34: The Proposed CAO should include a requirement for hydraulic control of the PCE at the LTLW site to prevent its continued migration down gradient.

   Prosecution Team Response: See response to District Item 5.

4. Finding 38: Requests that its Well #2 be considered for inclusion in Finding No. 38 as a municipal water supply well that continued to operation after the installation of PCE treatment facilities.

   Prosecution Team Response: Comment noted. Finding 2 has been revised to include the TKWC Well #2 as a supply well impacted with PCE, requiring installation of wellhead treatment. Finding 31 has been revised to include a statement that impacted supply wells warrant additional corrective actions by the Dischargers.

5. Finding No. 46: Requests requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area in the vicinity of thethree TKPOA municipal water supply wells.

   Prosecution Team Response: Comment noted. Finding 31 has been revised to state investigations and remediation need to extend to depths that account for deeper water bearing zones pumped for drinking water supply.

6. Order No. 3.1, requirements to monitor PCE in impacted wells should include the three TKPOA municipal water wells.

   Prosecution Team Response: Ordered Paragraph 3 has been deleted since it referred to future orders by the Water Board.

7. Order No. 4.1, requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area in the vicinity of the three TKPOA municipal water supply wells. TKPOA also requests that this determination be made consistent with the depth of the points of entry into the neighboring water supply wells.

   Prosecution Team Response: Comment noted. The Ordered Paragraphs have been revised (now Order 3) to require off-site investigation to be able to define the extent of PCE contamination at depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

8. Order No. 4.3.5, requirements to describe the depth of chlorinated hydrocarbons include the three TKPOA municipal water supply wells.

   Prosecution Team Response: This requirement has been revised (now Ordered Paragraph 3) to require a description of the full lateral and vertical extent of chlorinated hydrocarbons to 1 µg/L, including the depth of contamination from the Facility to off-site locations and supply wells currently or previously having impacts.

VI. Andrew A. Kopania Comments

1. Finding 19 refers to “two properties referenced in Paragraph 3”. From the context, it appears that those properties are referenced in Paragraph 4.

   Prosecution Team Response: Comment noted. The correct finding number has been inserted (now Finding 4).

2. The relatively steep hydraulic gradient described in paragraph 2 (0.01 to 0.06 ft/ft) suggests that an air sparge system would not be capable of developing an adequate capture zone to contain the VOC contamination emanating from the site. While the system may effectively treat a small area around each individual sparge well, the steep gradient and high groundwater flow velocities suggest that there may be substantial untreated mass between individual air sparge wells that is able to continually move downgradient.

   Prosecution Team Response: See response to the District’s comment 8.

3. The large rebound of almost 100-fold (5.9 µg/L to 550 µg/L) that occurred in 2013 when the air sparge system was down for approximately six months demonstrates that there is still substantial PCE mass present on the site that is not being treated or removed by the existing system.

   Prosecution Team Response: Water Board staff agrees with the comment. See response to the Lukins Brothers’ comment 6.

4. Order Item #3 – The monitoring reports would be of more value in evaluating the regional impacts from the site if they were also required to include data from affected STPUD, Lukins Brothers, and Tahoe Keys supply wells, to the extent that the Order requires sampling of all affected downgradient wells or the data can be obtained from the affected well owners.

   Prosecution Team Response: Water Board staff agrees, in general, with the comment but not in Ordered Paragraph 3, which states that the Dischargers may be required to provide replacement water when a supply well is determined to be impacted with contaminants from the LTLW site. Ordered Paragraph 3 has been deleted from the Revised Proposed Order. Ordered Paragraph 6, *Groundwater Monitoring and Reporting*, has been revised to include that monitoring reports show on maps the most recent PCE sampling results at supply wells.

5. Order Item #4 – It would be beneficial, and help clarify intent, if this section of the Order specifically required full vertical characterization of VOC impacts both on and off site.

   Prosecution Team Response: On-site contamination in the shallow zone of the unconfined aquifer appears to be mostly defined horizontally. The vertical extent of contamination in the deeper zone of the aquifer at the Facility needs definition and on-site monitoring requirements have been added to Ordered Paragraph 6, *Groundwater Monitoring and Reporting*. Revised Ordered Paragraph 3, referring to off-site investigation, clarifies that the vertical PCE delineation shall include depths consistent with the perforated intervals of all current and past affected regional public and private water supply wells.

6. Order Item #4.3.6 – The phrase “if possible” is vague and should be deleted. This section should require development of a conceptual hydrogeologic model (not a numerical model – just a conceptualization) that identifies potential preferential flow paths due to the ancient fluvial depositional environment and describes the different aquifer zones from which the various affected supply wells produce water. Apparently the geologist for STPUD has developed such a conceptualization related to some of the Lukins Brothers and Tahoe Keys wells. While several paragraphs in the Draft Order acknowledge the potential for lateral dispersion to increase the plume width, little or no discussion or requirements are included related to potential changes in the vertical extent of the plume. Development of a site conceptual model (SCM) and a description of the different vertical zones from which supply wells produce groundwater within the required Technical Report would be extremely valuable in developing an appropriate understanding of the extent of impacts and relevant and applicable remedies.

   Prosecution Team Response: Water Board staff agrees with the comment. Revised Ordered Paragraph 3.2.6 requires identification of depositional environments and preferential flow paths of the different aquifer zones from which the various affected supply wells produce water.

Jerry Johnson
c/o Tahoe Supply Company
PO Box 19111
South Lake Tahoe, CA 96151

Byron Zeek
1329 Highway 395, Suite 10
Garnerville, NV 98410

NO FURTHER ACTION REQUIRED FOR THE 1935 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY (SCP CASE NO. T6S035)

RESCISSION OF CLEANUP AND ABATEMENT ORDER NO. R6T-2003-0030

This letter confirms the completion of a site investigation for the property at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning spills and contamination are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the investigation carried out at your site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and **Safety Code** and with corrective action regulations adopted pursuant to Section **25299.**3 of the Health and **Safety Code** and that no further action related to hydrocarbons in groundwater at the site is required. This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and **Safety Code.**

Also at this time, the Water Board is rescinding the cleanup and abatement order that was issued for the site. The rescinded Order is No. R6T-2003-0030.

Please contact our office if you have any questions regarding this matter.

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosure: Case Closure Summary

Case Summary

Lahontan Regional Water Quality Control Board - Region 6

South Lake Tahoe Office:
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Victorville Office:
14440 Civic Drive, Suite 200
Victorville, CA 92392

1. Lahontan Regional Water Quality Control Board Contact

Case Worker: Lisa Dernbach	**Phone:** (530) 542-5424
Date Form Completed: 3/11/2016	

2. Case Information

Lahontan Case #: SCP #T6S035	**Geotracker Global ID #**: SL0601756146
Site Name: Lakeside Napa Auto Store	**Site Address**: 1935 Lake Tahoe Blvd, South Lake Tahoe CA 96150
Release Date: none	**County**: El Dorado
Water Board Permits and Cleanup and Abatement Orders Issued: CAO R6T-2003-0030	

3. Responsible Parties

Fee Title Owner(s): **Tahoe Supply Company** **Owner Address(es):** PO Box 19111 South Lake Tahoe, CA 96151	**Designated Responsible Party(ies):** **Jerry Johnson** **Byron Zeek** **RP Address(es):** PO Box 19111 South Lake Tahoe CA 96151 1329 Highway 395, Ste. 10 Gardnerville, NV 89410

4. Notifications

Date fee title ownership confirmed through county assessor's office? 9/25/15
How was fee title owner notified of proposed closure? US Mail
60-day comment period begin date: **October 8, 2015**
Comments:

5. Unauthorized Release Description

Type of product released: None
Primary source/release mechanism: NA
Comments: No releases to soil identified

6. Site Setting

Site Location (describe general site area, e.g., located in a commercial area) and Site Land Use (current and any known planned use of the site): Auto parts store and former mechanics shop located in a commercial area. No change to planned use is known.
Comments:

7. Media Specific Criteria

Groundwater Pathway Discussion: *(Explain why the groundwater contaminant plume poses, under current and reasonably anticipated near-term future scenarios, a low threat to human health, safety, and the environment.)*

Groundwater plume beneath this parcel is likely due to historical releases at another site and the Lakeside Napa property owner is no longer required to conduct investigations.

Vapor Intrusion to Indoor Air Pathway: (*Explain why existing site conditions are protective of human health, or describe what mitigation measures or institutional or engineering controls were used to reduce risk to human health to less than significant levels.)*

Since there is no solvent source indicated at the Lakeside Napa site, there is no or little threat to human health from vapor intrusion.

Direct Contact and Outdoor Air Exposure Pathways: (*Explain why existing site conditions are protective of human health and the environment, or the mitigation measures, institutional or engineering controls that reduce risk to human health and the environment to less than significant levels.)*

Existing conditions are protective of human health and the environment because there is no evidence of a release of chemicals on site. Since solvent contamination exists in groundwater currently about 16 feet below ground surface and there are no wells on site, there is no chance for people to have direct contact. Also, as the site is completely covered with a concrete foundation and asphalt parking lot, there are no outdoor air

exposure pathways.

Rationale for No Further Action Required: (*Provide rationale to support No Further Action Required status*.)

Closure is justified since the property is not the source for groundwater contamination based on past results of valid soil and water table samples. Soil and groundwater remediation is occurring at another site which is expected to overall reduce off-site contaminants in groundwater south of the South Y area and at the Lakeside Napa property. Therefore, since the Lakeside Napa site does not pose a threat to human health and the environment, closure is appropriate.

(date)

Seven Springs Limited Partnership
Christopher Blair
Christopher.blair@commercebank.com
Commerce Bank, N.A.
P.O. Box 419249
Kansas City, MO 64141-6248

RESPONSE TO COMMENTS ON 60-DAY NOTICE TO CLOSE THE NAPA AUTO STORE CASE (T6S035), 1935 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff reviewed the December 7, 2015, letter summited by PES Environmental on behalf of the Commerce Bank, N.A., et al, and Seven Springs Limited Partnership, the entity that holds title to the South Y Shopping Center, on the 60-day notice for issuing a No Further Action (NFA) letter for the Lakeside Napa Auto Store case. This letter responds to comments in PES Environmental's letter.

Background

The Napa Auto site is owned by the Tahoe Supply Company and included operation in the past of a one-bay auto repair shop and later replaced with a metal shop. The property is located on the northwest side of Lake Tahoe Boulevard and west side of Glorene Avenue.

In 2001, the Water Board required the property owner for the Napa Auto site to conduct an investigation for evaluating the presence of solvent compounds in groundwater. In January 2002, grab groundwater samples were collected from four temporary on-site borings from shallow (20 feet below ground surface [bgs]) and deeper (48 feet bgs) depths. Tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in the groundwater samples at maximum concentrations of 3,000 micrograms per liter (µg/L), 53 µg/L, and 95 µg/L, respectively. Each detected compound exceeded its respective drinking water standard of 5 µg/L, 5 µg/L, and 6 µg/L, respectively. Based on the results of the groundwater sampling, the Water Board issued Cleanup and Abatement Order No. R6T-2003-030 directing the owner of the Napa Auto site to conduct a soil and groundwater investigation to further evaluate the presence of volatile organic compounds (VOCs) at the property and determine the source.

In November 2003, soil and groundwater sampling from temporary borings was conducted on the Napa Auto property and at off-site locations. The results of this investigation were reported to the Water Board in a report by Secor International, dated January 20, 2004. Seventeen shallow soil samples (mostly from depths of 1.5 feet and 6 feet bgs) were collected and no

concentrations of the solvent compounds were detected at or above the laboratory reporting limits. A soil sample was collected from the angled boring from outside the Napa building was calculated to be 8 feet below the interior sump. Grab groundwater samples were collected from fourteen temporary borings at approximately 24 feet bgs and 45 feet bgs. PCE and TCE at maximum concentrations of 2,200 µg/L and 55 µg/L, respectively. As with the 2002 investigation, the highest concentrations were detected at the 45-foot depth but this time from off-site borings in Glorene Avenue, adjacent to Lake Tahoe Boulevard. Elevated concentrations of PCE and TCE in groundwater generally decreased in concentration from Lake Tahoe Boulevard northward towards Tucker Avenue and westwards towards Tata Avenue. The monitoring well samples contained no detectable concentrations of VOCs, indicating there were no impacts of solvent compounds below the 50-foot silt layer.

No further investigations occurred at the Napa Auto site as the Water Board pursued another site in the direction indicated by the highest levels of solvent compounds in groundwater, that being the LTLW on the southeast side of Lake Tahoe Boulevard.

Response to Comments

The PES Environmental comment letter outlines: (i) specific concerns Seven Springs et al has regarding the previous soil and groundwater investigations conducted at the Napa Auto Site; and (ii) why it is inappropriate at this time to conclude that the Napa Auto Site has not contributed to the PCE contamination found in groundwater beneath the Napa Auto Site and/or the surrounding area in South Lake Tahoe. This letter responds to comments (shown in italics) in that letter using the same headings. Some comments had several issues to address, so we attempted to paraphrase what we believe are the issues you have identified.

Insufficient Site Characterization

Subsurface investigations conducted at the Napa Auto Site have not adequately characterized the property and have not identified or assessed potential source areas as required by the Amended Cleanup and Abatement Order.

A. Inadequate Soil Contamination Investigation

The Napa Auto Site investigation was not conducted in accordance with the approved work plan. The work plan proposed near surface soil sampling at on-site interior locations to assess whether discharges from a floor drain, concrete sump, and associated piping have occurred. However, no interior sampling was conducted. As a result of the failure to complete the investigation set forth in the approved work plan, it has not been determined if releases from these on-site features occurred.

Response: The Water Board acknowledges that the 2003 site investigation was not conducted in strict adherence to the approved workplan. This is not unusual. Often times, unknown or unaccounted for site conditions prevent exact execution of a workplan during an investigation.

During the 2003 investigation, soil samples were collected at nine of the ten proposed on-site boring locations. On-site borings were located where high VOC concentrations were detected in groundwater during the 2002 investigation. Water Board staff approved the elimination of one proposed boring location (BH-1) prior to the investigation upon the consultant's discovery that a potential floor drain inside the shop did not exist. During the investigation, one of the borings (BH-9) was located adjacent to the outside storage area.

Another boring location (BH-10) was moved from inside the shop to an outside location after it was determined that the sampling drill rig was too large to enter the shop building. The outside boring, located near BH-9, was drilled at a 30-degree angle so as to collect a soil sample beneath the location of the indoor concrete sump. So instead of two soil samples (one near-surface and one about 6 feet bgs) collected in the sump location, only a deeper sample was collected at about 8 feet bgs. This change in the workplan was conducted at the time in consultation with Water Board staff.

The laboratory reported no detectable concentrations of PCE or breakdown products in all seventeen soil samples collected, including the shallow and deep samples next to the storage shed. The lack of detection in the deep soil sample depth below the sump area indicates the lack of contaminants which could potentially impact groundwater quality in times of rising groundwater. While the depth to the water table was approximately at 24 feet bgs during this investigation, historical groundwater in wet years has risen to within 8 feet bgs[1]. So the results from the 8-foot soil sample are more important than the results that a shallow soil sample (from 1.5 feet depth) near the sump would have provided since the former would indicate threat to groundwater quality while the latter would not. If shallow (1.5 feet bgs) soil sampling had been conducted at other indoor locations, such as the service bay, it would not have been affected by a rising water table enough to indicate a threat to groundwater quality. So the lack of shallow soil samples from inside the shop area is not enough reason to not close the case. In summary, the lack of detectable solvent compounds in soil beneath the sump, next to the storage shed, and at locations previously showing high VOCs in groundwater, indicated there was no source in soil at the Napa site impacting or threatening groundwater quality. No alternate data has been provided since to refute this conclusion.

B. Groundwater Results Strongly Suggest a Source of PCE at the Napa Auto Site

Contrary to the conclusions in the Consideration of No Further Action Required…there is substantial evidence suggesting the presence of a source of PCE on the Napa Auto Site. The RWQCB's notice concludes that the contamination plume identified beneath the Napa Auto Site is due to historical releases (from) the Late(sic) Tahoe Laundry Work (LTLW) site across Lake Tahoe Boulevard to the south. However, based on the results of the groundwater sampling conducted beneath the Napa Auto Site and the LTLW site as well as sampling conducted beneath Lake Tahoe Boulevard, significantly lower levels of PCE are present in the shallow and middle water-bearing zones at locations between the two sites.

Concentrations of PCE detected in shallow and middle water-bearing zones are shown on the attached Plates 1 and 2, respectively. As shown on Plate 1, PCE concentrations are elevated in the shallow water-bearing zone beneath the LTLW site and PCE concentrations decrease significantly moving north beneath Lake Tahoe Boulevard towards the Napa Auto Site. PCE concentrations increase significantly in groundwater samples collected on the Napa Auto Site, jumping from less than the laboratory reporting limit (1 µg/L) on the perimeter of the Napa Auto Site to up to 130 µg/L on the interior of the site. These data suggest a PCE source may be present on the Napa Auto Site and contradict a conclusion that the groundwater plume beneath the Napa Auto Site is due to releases from LTLW.

[1] 2006 PES Environmental, Additional Soil Investigation Results, Lake Tahoe Laundry Works.

Response: The data shown on the attached Plates do not represent sample results from the same time period and therefore cannot be used to argue concentration trends between different properties. This position is demonstrated by the difference in PCE concentrations detected at the water table during the two investigations conducted at the Napa Auto site. During the January 2002 groundwater investigation, PCE was detected up to 130 µg/L at 20 feet bgs in the four temporary on-site boring locations. But during the November 2003 investigation, PCE was detected in just one of the eight water table samples (at 24 feet bgs) collected from on-site boring locations and only up to 1.1 µg/L. The two-orders of magnitude discrepancy in PCE concentrations at the Napa Auto site within a span of almost two years shows the seasonality and precipitation year differences in groundwater contaminants at a site. This information indicates it is inappropriate to compare PCE detections in groundwater at the Napa Auto site during 2002 and 2003 to PCE detections in groundwater from the LTLW site during 2005 and 2008. Since the comparison is not for contemporaneous data, PES' comment is not supported by the evidence.

Furthermore, the nearly lack of PCE detections in the water table during the 2003 investigation indicates the absence of a source in soil at and above 24 feet bgs throughout the property. Such information also indicates the lack of PCE in soil gas, commonly associated with a PCE source in soil. If the Napa Auto site had been a source, PCE would have been detected at the water table at some concentration in most of the boring locations in the 2003 investigation, even with the water table dropping 4 feet between the time of the two investigations. This is because soil vapor associated with solvent releases continue to impact water quality even if residual contamination in soil is not in contact with the water table. Examples of this condition is seen at the LTLW site and other known PCE source sites. Thus, the nearly lack of on-site PCE detection in the water table is significant enough to convince the Water Board that no solvent source is affecting or contributing to groundwater pollution in the drinking water aquifer. And without more recent evidence pointing to the Napa Auto site is a source of solvent compounds, the Water Board has no justification to require additional site assessment with monitoring wells or development of a site conceptual model.

Furthermore, as depicted on Plate 2, concentrations of PCE on the LTLW site in the middle water-bearing zone are significantly lower than the concentrations of PCE detected beneath the Napa Auto Site. The data show that concentrations of PCE increase as groundwater flows south to north in the middle water-bearing zone, with elevated levels present beneath the Napa Auto Site (up to 3,000 µg/L). These data strongly suggest the presence of a source of PCE on the Napa Auto Site, as the concentrations present beneath the Napa Auto Site are an order of magnitude greater than the upgradient concentrations at LTLW.

Response: Water Board staff agrees with the statement that PCE concentrations are greater in the middle-depth of groundwater samples collected from beneath the Napa Auto site compared to concentrations from the water table[2], which were one order of magnitude less in the 2002 investigation. Yet we disagree that this information indicates the Napa Auto site is a source or is contributing to groundwater pollution.

[2] no shallow- or middle-bearing water zones are recognized at the site; all water samples were collected from the same unconfined aquifer.

Text books and research articles[3] on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site (enclosure). As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the greatest PCE concentrations were detected in shallow wells at the LTLW site and then at middle-depth monitoring wells at the Napa Auto site, about 200 feet away.

The reason for VOC detection at different depths in the aquifer at the Napa site compared to the LTLW site is explained in several ways. The first explanation is depicted in the enclosed figure[4] showing a cross section of DNAPL fate and transport in groundwater. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L) were detected near the water table at the LTLW site but in middle-depth groundwater samples at the Napa Auto site, about 200 feet away.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW site during the 1970s, it would have been affected by nearby supply wells. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. This would explain PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-6 (between the Napa and LTLW sites) and also PCE detections beneath the Napa site at 48 ft bgs. After the Clement well ceased operating in 2000, groundwater flow would have shifted to a more northerly direction as seen today. This interpretation is supported by the Fourth Quarter 2009 Groundwater Monitoring Report for the LTLW site, which states, “Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data.” Therefore, VOCs detected in the middle depth of the aquifer beneath Lake Tahoe Boulevard and the Napa site are interpreted as being from the LTLW site.

Finally, the Consideration of No Further Action Required notification indicates that PCE concentrations at the Napa Auto Site have been reduced over time to 6 µg/L due to remedial actions conducted at the LTLW site. Based on the lack of additional groundwater sampling conducted at the Napa Auto Site since 2006 and the lack of groundwater monitoring wells required by Amended Order No. R6T-2003-031A1, it does not appear there is a basis for this conclusion. Based on the detection of VOCs in groundwater beneath the Napa Auto Site, groundwater monitoring wells should be installed at the site as required by Requirement 3.3 of Order No.

[3] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research

[4] 1989 Waterloo Centre for Groundwater Research

Response: Water Board staff agrees with the comment that there has been no recent data collected at the Napa Auto site. The cited PCE concentration of 6 µg/L in the Closure Summary was a rounded-up detection from a monitoring well on the LTLW site close to Lake Tahoe Boulevard. The most recent Napa on-site data was collected during the 2003 investigation while the most recent off-site data was collected in 2004 by PES from a temporary boring in the middle of Lake Tahoe Boulevard between the Napa and LTLW sites containing 710 µg/L PCE. But based upon the above discussions indicating the Napa Auto site is not a source contributing to groundwater pollution, there is no need to require monitoring well installation at the Napa Auto site per CAO R6T-2003-031A1. Therefore, the Closure Summary will be revised to reflect that final PCE concentrations beneath the Napa Auto site are unknown.

Administrative Deficiencies

PES' letter comments on administration deficiencies in RWQCB's effort to establish site closure that render impossible the public's ability to offer comment on RWQCB's action. For instance, the Consideration of No Further Action Required notification was not posted to the public RWQCB's webpage until November 12, 2015, after a request by Seven Springs. In addition, the Consideration of No Further Action Required notification indicates that the address of the Napa Auto Site is 1035 Lake Tahoe Boulevard, not 1935 Lake Tahoe Boulevard. We further note that as of the date of this letter, the RWQCB Geotracker webpage indicates that the Napa Auto Site was closed in February 2015 and that no site maps or documents regarding the Napa Auto Site are provided. Issuance of a No Further Action letter under these circumstances would be inappropriate.

Response: Adequate notification was issued to the public for commenting on the Consideration of NFA for the Napa Auto site. Hard copies of the Notification, dated October 8, 2015, were mailed to an extensive mailing list of PCE interested parties maintained by the Water Board. In addition, the Notification was posted on Geotracker the same day. Also in Geotracker, the heading "Cleanup Status" revealed the site was "open and eligible for closure as of 10/1/2015." And while there was an error in the address listed in the Notification, the site name, case number, and responsible party were listed correctly, prompting written comments from PES and another party along with verbal comments from the property owner (the latter being in favor of site closure). Site maps and documents are not posted on Geotracker because their 2002 and 2004 submittals pre-dated when technical reports for cases under the Site Cleanup Program were required to be uploaded. The two documents, however, have been available for viewing and copying by the public at the Water Board's office in South Lake Tahoe. Furthermore, PES has been in possession of these copies since 2004 when the Water Board first contacted the property owner of the LTLW site to conduct an investigation for groundwater contamination. The Water Board is not aware of any party wanting to provide comments but not having access to site documents. Therefore, the Water Board's notification to the public was sufficient for closing the Napa Auto site.

Conclusion

The two site investigations conducted at the Napa Auto site, while not in strict adherence to one workplan, were reasonable enough to collect the necessary samples to evaluate whether the site was a source of solvent contamination and contributed to groundwater impacts. No solvent compounds were detected in the seventeen soil samples collected across the site. Investigation results did not show PCE concentrations increasing across the site in the downgradient groundwater flow direction as would have occurred with an on-site source. Rather, data

indicate an off-site source affecting groundwater beneath the Napa Auto site as evidenced by 1) the essentially lack of detected contamination in on-site water table samples during the 2003 investigation 2), higher PCE concentrations detected in the upgradient flow direction to the shop area, and 3) PCE concentrations overall increasing across the site in the upgradient flow direction. This combination of information prompted the Water Board in 2004 to look at other potential upgradient sources. Since contaminant concentrations in groundwater were higher off-site on Glorene Avenue instead of on the Napa Auto property, a source was indicated to the east of the site. Multiple site investigations at the LTLW site point to it as the probable source affecting groundwater quality beneath the Napa site.

In conclusion, investigation data do not point to the Napa Auto property being a solvent source affecting or contributing to groundwater pollution in the drinking water aquifer. Adequate notice was provided to the public in the form of hard copies and on the Geotracker database that the Water Board was considering issuing NFA for the site. Therefore, it is reasonable to close the Napa Auto site in the Water Board's files.

You may contact me at (530) 542-5436 if you have any questions concerning this matter.

LAURI KEMPER
ASSISTANT EXECUTIVE OFFICER

Enclosure: Waterloo Center DNAPL cross section

CC: PCE Interested Party mailing list

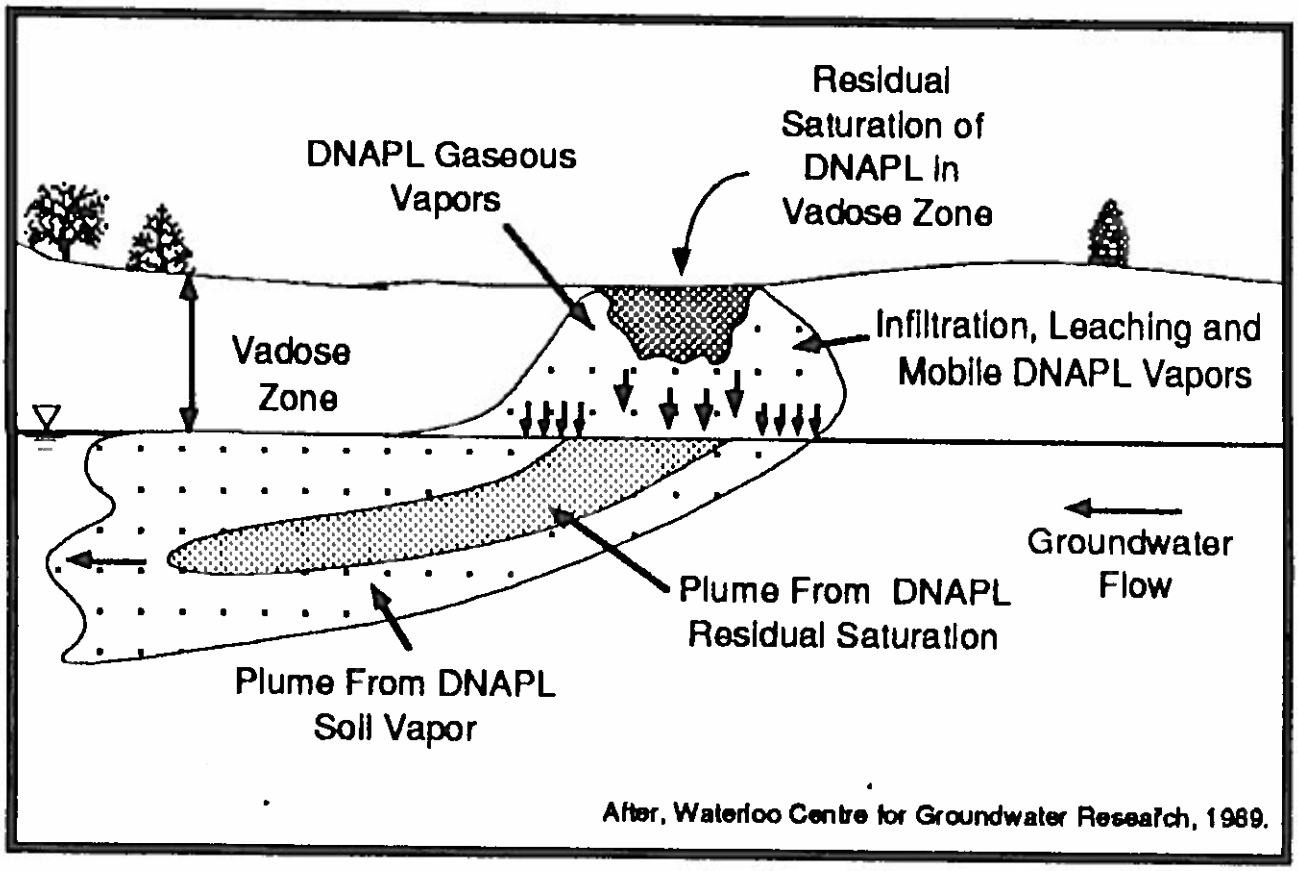


Figure 2. Migration of DNAPL vapors from the spill area and subsequent contamination of the soils and ground water.

(date)

Fox Capital Management Corporation
c/o Scott Reisch (scott.reisch@hoganlovells.com)
Hogan Lovells US LLP
One Tabor Center, Suite 1500
1200 Seventeenth Street
Denver, Colorado 80202

RESPONSE TO COMMENTS ON 60-DAY NO FURTHER ACTION NOTICE, LAKESIDE NAPA AUTO STORE CASE (T6S035), 1935 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff reviewed the December 3, 2015 letter submited by Erler & Kalinowski, Inc. ("EKI") on behalf of the Fox Capitol Management Corporation, the successor to the entity that originally held title to the South Y Shopping Center, on the 60-day notice for issuing a No Further Action (NFA) letter for the Lakeside Napa Auto Store case. This letter responds to comments in EKI's letter.

Background

The Napa Auto site is owned by the Tahoe Supply Company and included operation in the past of a one-bay auto repair shop and later replaced with a metal shop. The property is located on the northwest side of Lake Tahoe Boulevard and Glorene Avenue.

In 2001, the Water Board required the property owner for the Napa Auto site to conduct an investigation for evaluating the presence of tetrachloroethene in groundwater. In January 2002, grab groundwater samples were collected from four temporary on-site borings from shallow (20 feet below ground surface [bgs]) and deeper (48 feet bgs) depths. Tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in all groundwater samples, with maximum concentrations of 3,000 micrograms per liter (µg/L), 53 µg/L, and 95 µg/L, respectively, in the 48-foot depth. Each detected compound exceeded its respective drinking water standard of 5 µg/L, 5 µg/L, and 6 µg/L, respectively. Based on the results of the groundwater sampling, the Water Board issued Cleanup and Abatement Order No. R6T-2003-030 directing the owner of the Napa site and then operator of the metal shop, Byron Zeek, to conduct a soil and groundwater investigation to further evaluate the presence of volatile organic compounds (VOCs) at the property and determine the source.

In satisfaction of the CAO, the responsible parties conducted soil and groundwater sampling from fourteen temporary borings in November 2003 on the Napa Auto property and at off-site locations along Glorene and Tucker Avenues. The results of this investigation were reported to the Water Board in a report by Secor International, dated January 20, 2004. Seventeen shallow soil samples (mostly from depths of 1.5 feet and 6 feet bgs) were collected and no concentrations of the solvent compounds from the 2002 investigation were detected at or above the laboratory reporting limits. A soil sample was collected from an angled boring from outside the Napa building and was calculated to be 8 feet below the concrete sump. Grab groundwater samples were collected from fourteen temporary borings at approximately 24 feet and 45 feet bgs. PCE and TCE were detected at maximum concentrations of 2,200 µg/L and 55 µg/L, respectively. Similar to the 2002 investigation, the highest concentrations were detected at the 45-foot depth but differed from the 2002 results in that these concentrations were detected in the off-site borings in Glorene Avenue, adjacent to Lake Tahoe Boulevard. Elevated concentrations of PCE and TCE in groundwater generally decreased in concentration from Lake Tahoe Boulevard northward towards Tucker Avenue and westwards towards Tata Avenue. In addition, groundwater samples were collected at two deep monitoring wells, installed for another site, located on the northwest corner of Glorene and Lake Tahoe Boulevard, south of boring BH-11. These deep monitoring well samples contained no detectable concentrations of VOCs, indicating there were no impacts of solvent compounds below the 50-foot silt layer. Overall, the data indicated the Napa site was not the source of solvents affecting groundwater quality and the Water Board did not required further actions. The Water Board pursued another site in the direction indicated by the highest levels of VOCs in groundwater, that being the Lake Tahoe Laundry Works (LTLW) on the southeast side of Lake Tahoe Boulevard.

Response to Comments

The EKI comment letter states the determination of No Further Action ("NFA") for the Napa site by the Water Board is not warranted since it is: (a) based on soil and groundwater data that are 12 to 13 years old; (b) based on inadequate site investigations by Napa; (c) counter to the findings and conclusions issued by the Water Board in the past; and (d) premature in light of other investigations that are ongoing in the area. Some comments had several issues to address, so we attempted to paraphrase what we believe are the issues you have identified.

A. The Water Board is Relying on Old Data

No more recent subsurface sampling has been conducted on the Napa site since the 2003 investigation. The Water Board, in its closure evaluation of the Napa site, is relying on data that are 12 to 13 years old which may not accurately represent current soil, soil vapor, and groundwater conditions on the Napa site. More recent subsurface data from the Napa site should be collected and evaluated before the Water Board considers the Napa site for closure.

Response: Water Board staff agrees with the comment that there has been no recent data collected at the Napa Auto site. The most recent on-site data was collected during the 2003 investigation. The most recent off-site data was collected in 2004 by PES Environmental from a temporary boring (GW-6) in the middle of Lake Tahoe Boulevard between the Napa and Lake Tahoe Laundry Works (LTLW).

Water Board staff's review of the Napa 2002 and 2003 investigation results found there were sufficient soil and groundwater samples collected to provide an evaluation of site conditions at that time. The data indicated the site was not a source contributing to solvent impacts to groundwater quality. Groundwater data from the 2003 investigation further indicated that an off-site solvent source existed to the east of the Napa site, based upon the Glorene Avenue results. The discussions below go into more detail for how Water Board staff reached this conclusion. Since the data from the prior Napa investigations were valid and indicated no solvent source existed, there is no justification to require the Napa property owner to collect additional data. Water Board staff waited until we had adequate investigation data from an off-site source(s) before pursuing case closure for the Napa site. Monitoring well data from the Lake Tahoe Laundry Works site since 2008 indicate it is the source of solvents affecting groundwater that migrated beneath the Napa site. Now that we have that information, it is appropriate to close this case.

B. The Water Board is Relying on an Inadequate Investigation by Napa

The prior subsurface investigations of the Napa site were incomplete, as summarized below:

- *The concrete sump inside the Napa building is a potential PCE discharge point. No soil borings were advanced through the bottom of the sump and no soil samples were collected directly beneath the sump, it should be evaluated further prior to consideration of closure of the Napa site by the Water Board.*
- *During the 2002 and 2003 investigations at the Napa site, no soil samples were collected from interior areas of the Napa site building, including interior areas of the auto service bays and machining areas where chemicals such as solvents may have been used or stored. Furthermore, no floor drains or subsurface wastewater pipelines within the Napa site building were assessed. These areas should be assessed prior to consideration of closure of the Napa site.*

Response: During the 2003 investigation, soil samples were collected at nine of the ten proposed on-site boring locations. On-site borings were located where high VOC concentrations were detected in groundwater during the 2002 investigation. Water Board staff approved the elimination of one proposed boring location (BH-1) prior to the investigation upon the consultant's discovery that a potential floor drain inside the shop did not exist. During the investigation, one of the borings (BH-9) was located adjacent to the outside storage area. Another boring location (BH-10) was moved from inside the shop to an outside location after it was determined that the sampling drill rig was too large to enter the shop building. Boring BH-10, located near BH-9, was drilled at a 30-degree angle so as to collect a soil sample beneath the location of the indoor concrete sump. Rather than collecting two soil samples (one near-surface and one about 6 feet bgs) in the sump location, only a deeper sample was collected at about 8 feet bgs. This change in the workplan was conducted at the time in consultation with Water Board staff.

The laboratory reported no detectable concentrations of PCE or breakdown products in all seventeen soil samples collected, including the shallow and deep samples next to the storage shed. The lack of detection in the deep soil sample depth below the sump area indicates the lack of contaminants which could potentially impact groundwater quality in

times of rising groundwater. While the depth to the water table was approximately at 24 feet bgs during this investigation, historical groundwater in wet years has risen to within 8 feet bgs[1]. The results from the 8-foot soil sample are more important than the results that a shallow soil sample (from 1.5 feet depth) near the sump would have provided since the former would indicate a threat to groundwater quality while the latter would not. A shallow soil sample collected at1.5 feet bgs at other indoor locations, like the service bay, would not have been located at a depth affected by a rising water table and therefore would not indicate whether solvent compounds posed a threat to groundwater quality. Water Board staff does not view the lack of shallow soil samples from inside the shop area as a reason to keep this matter open. In summary, the lack of detectable solvent compounds in soil beneath the sump, next to the storage shed, and at locations previously showing high VOCs in groundwater, indicated there was no source in soil at the Napa site impacting or threatening to impact groundwater quality. No alternate data has been provided since to refute this conclusion.

- *No groundwater monitoring wells were installed at the Napa site in both upgradient and downgradient locations to obtain representative and reproducible groundwater sample results, or to assess the nature and extent of the contamination. Additional assessment appears warranted, including the preparation of a conceptual site model.*

Response: During the November 2003 investigation, PCE was detected in just one of the eight water table samples (at 24 feet bgs) collected from on-site boring locations. The detection of 1.1 µg/L PCE at BH-7 was well below the 5 µg/L drinking water standard. The near lack of PCE detections in the water table indicates the absence of a source in soil at and above 24 feet bgs throughout the property. The absence of such detections also indicates the lack of PCE in soil gas, commonly associated with a PCE source in soil. If the Napa site had been a source, it's highly likely that PCE would have been detected at the water table at some detectable concentration in most of the boring locations in the 2003 investigation due to the release of soil vapors. Soil vapor associated with solvent releases continues to impact water quality even if residual contamination in soil is not in contact with the water table. Examples of this condition can be seen at the LTLW site and other known PCE source sites. Thus, the near lack of on-site PCE detection in the water table is significant evidence to support the Water Board's conclusion that no solvent source is affecting or contributing to groundwater pollution in the drinking water aquifer. Without additional evidence pointing to the Napa Auto site as a source of solvent compounds, the Water Board has no reasonable basis to require additional site assessment with monitoring wells or development of a site conceptual model.

C. Water Board Indicated that Napa Site is a Source for PCE in Middle Zone Groundwater

In its Staff Report, dated 22 August 2005 (Attachment 2), the Water Board concluded that PCE in middle zone groundwater at the Napa site may have originated from releases at the Napa site, since PCE concentrations in groundwater increased from the upgradient (west) side of the site to the middle of the site. The 2005 Staff Report stated that further investigation may be necessary. Since preparation of the Water Board Staff Report in

[1] 2006 PES Environmental, Additional Soil Investigation Results, Lake Tahoe Laundry Works.

2005, no more recent middle zone groundwater data have been generated that would be expected to alter the Water Board's conclusions and opinions regarding the source for PCE in groundwater on the Napa site.

In an email prepared by Ms. Dernbach submitted to Mr. Harold Singer with the Water Board, dated 15 November 2004 (Attachment 3), Ms. Dernbach indicated that PCE contamination in middle zone groundwater beneath Lake Tahoe Boulevard (710 µg/L at 44 feet bgs), between the Napa site and the Lake Tahoe Laundry Works ("LTLW") site, did not appear to be from the LTLW site, but more likely originated at the Napa site. Ms. Dernbach further stated in the email transmittal that the PCE contamination on the LTLW site "is clearly in the upper portion of the saturated zone (20-30 ft) and is unlikely to be pulled to the 44 ft depth". Accordingly, in 2004, the Water Board considered the Napa site to be a source for the PCE in groundwater on the Napa site. As stated above, no more recent middle-zone groundwater data have been generated that would be expected to alter the Water Board's conclusions and opinions regarding the source for the PCE in groundwater on the Napa site.

Response: When the 2004 and 2005 emails by Ms. Dernbach were written, the exact groundwater flow direction was not known at the Napa site or general area south of the South Y intersection. All groundwater investigations up to that time consisted of grab groundwater samples from temporary borings, with nothing surveyed to a known datum. At the time, the groundwater flow direction in this area of Tahoe Valley was believed to be northeasterly, towards the South Y intersection which is why the words "may," "likely, "unlikely," and "do not appear" were used in the referenced emails.

Since then, monitoring wells were installed at the LTLW in 2008 providing more exact groundwater flow direction information. The groundwater gradient flow map for September 2008 shows the direction of groundwater flow at MW-1S, the solvent hot spot at the LTLW site, as being towards the northwest, in the direction towards the Napa site. Subsequent monitoring reports submitted for the LTLW have shown the groundwater flow directions ranging from northwest[2] to the north-northeast[3]. Overall, these reports state the flow direction is in the northerly direction. The general flow direction applies over the entire unconfined aquifer and would not be different at different depths as groundwater movement is not being influenced by pumping since nearby municipal and domestic wells ceased operating by 2000.

The newer groundwater flow direction information has changed Water Board staff's interpretation of PCE source sites and off-site affected properties since the 2004 and 2005 emails and staff report. For instance, groundwater flow from the Napa site is now interpreted to move in a northerly direction towards Tucker Avenue instead of easterly towards the LTLW site and South Y intersection. If the shop at the Napa site had been a solvent source, Water Board staff would have expected to see higher VOC concentrations in the groundwater downgradient flow direction towards the north compared to upgradient concentrations. However, lower PCE concentrations of 220 µg/L were detected in water

[2]September 2008

[3]Fourth Quarter 2009

samples collected at downgradient BH-14 during the 2003 investigation, on the corner of Glorene Avenue and Tucker Avenue compared to on-site PCE concentrations of ??? near the shop. In contrast, higher PCE concentrations of 1,300 µg/L were detected in water samples from upgradient locations, such as BH-8. This information indicates the Napa site is not a solvent source contributing to higher levels of contamination in groundwater.

The newer groundwater flow direction information also indicates that contaminated groundwater from source areas on the LTLW site are migrating in a northerly direction. Source areas include the solvent hot spot in soil to an unknown depth near monitoring well MW-1, beneath the LTLW building foundation, and areas affected by soil gas detected at the northeastern end of the shopping center. Contaminated groundwater has migrated across the street towards 1961 Lake Tahoe Boulevard (former Big O Tires Store) and 1959 Lake Tahoe Boulevard (Placer Title), with diffused concentrations detected along Glorene Avenue and at 1935 Lake Tahoe Boulevard, the Napa site. This interpretation is consistent with the results of the Napa 2003 investigation showing higher VOC concentrations (2,200 µg/L PCE) in groundwater near Lake Tahoe Boulevard and lower concentrations north towards Tucker Avenue (760 µg/L PCE) and west towards the western property line of the Napa site (210 µg/L PCE).

The reason for VOC detection at different depths in the aquifer at the Napa site compared to the LTLW site is explained in several ways. Text books and research articles[4] on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site (enclosure). As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L in 2009) were detected near the water table at the LTLW site but in middle-depth groundwater samples at the Napa Auto site, about 200 feet away.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW site during the 1970s, it would have been affected by the pumping of nearby supply wells until they were turned off in 2000. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. This would explain high PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-6 (between the Napa and LTLW sites) in the 2004 LTLW investigation and also at 48 ft bgs beneath the Napa site in 2003. After the Clement well ceased operating in 2000, groundwater flow would have shifted to a more northerly direction as seen today. This interpretation is supported by the Fourth Quarter 2009 Groundwater Monitoring Report for the LTLW site, which states, “Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data.” Therefore, VOCs detected in the middle depth of the aquifer beneath Lake Tahoe Boulevard and the Napa site are interpreted as being from the LTLW site.

[4] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research

D. The Water Board's Proposed Action is Premature Given Ongoing Site Investigations

Groundwater investigations were recently completed on behalf of the Water Board in an area downgradient, i.e., northeast, of the Napa site in accordance with a Work Plan prepared by URS Corporation, dated 8 October 2015. We understand that the results of these investigations will not be available to the public until the first week of January 2016. The results of the Water Board investigations may provide information relevant to the reported groundwater conditions on the Napa site and closure consideration of the Napa site.

Response: The results of the fall 2015 PCE investigation conducted by URS did not reveal data or information relevant to groundwater conditions at the Napa site. The URS investigation report, dated January 19, 2016, contained PCE and total petroleum hydrocarbons (TPH) data from temporary borings and monitoring wells in the western area of South Lake Tahoe, on the north side of the South Y. The closest sample location to the Napa site containing PCE at concentrations exceeding the drinking water standard of 5 µg/L was at MW-4A/B, located on Eloise Avenue, 1,800 feet north of the Napa site. In MW-4B with a screen interval of 35 to 50 feet bgs, the laboratory reported 150 µg/L PCE and 81 µg/L TPH as gasoline. Due to the significant distance between the two locations and the lack of in-between samples at similar depths, it is impossible to know whether PCE and TPH as gasoline detected in MW-4B is from a potential source at the Napa site. Other lines of evidence from the 2003 investigation, as stated above, indicate the Napa site is not a PCE source affecting or contributing to groundwater pollution in the drinking water aquifer. Therefore, there is no information in the PCE investigation report to justify delaying closure of the Napa site. Unless new information is brought forward that the Napa responsible parties did contribute PCE to groundwater through groundwater data or historical records become available that document a PCE source at the Napa site, it is appropriate for the Water Board to determine that no further action is necessary to attain water quality objectives at this Site.

In addition, the Water Board has issued a draft cleanup and abatement order to Seven Springs Limited Partnership and Fox that would require them to undertake an investigation of PCE contamination in an area that includes the Napa site and downgradient areas. The parties' responsibility for that contamination is in dispute, in part because the parties contend that the Napa site is a source of the contamination. To be fair to parties, the Water Board should not take any action to absolve Napa of responsibility for contamination at its site while that dispute is pending. Furthermore, if the draft order is finalized, the Water Board should review the results of any additional investigation required by the order before concluding that closure of the Napa site is warranted.

Response: Previous investigation data for the Napa site was valid when collected and did not indicate an on-site PCE source contributing to groundwater pollution. Groundwater data from 2003 pointed to an off-site solvent source in the easterly direction from which contaminated groundwater migrated beneath the Napa site. More recent investigations at the LTLW site, as discussed above, appear to corroborate this determination. Since no new data or information has been provided to refute this conclusion, it is reasonable and justified to issue a NFA letter for the Napa site. The Water Board has the ability re-open

any closed case should new information be provided indicating the site is a source impacting groundwater quality or public health.

Conclusion

The two site investigations conducted at the Napa site were reasonable and diligent investigations. The investigation results indicate to Water Board staff that the site was not and is not a source of solvent contamination contributing to groundwater impacts. No solvent compounds were detected in the seventeen soil samples collected across the Napa site.

Investigation results did not show PCE concentrations in groundwater increasing across the site in the downgradient flow direction as would have occurred with an on-site source. Rather, data indicate an off-site source affecting groundwater migrated beneath the Napa site as evidenced by: 1) the essentially lack of detected contamination in on-site water table samples during the 2003 investigation; 2) higher PCE concentrations detected in the upgradient flow direction to the shop area; and 3) PCE concentrations overall increasing in the upgradient flow direction to Lake Tahoe Boulevard. This combination of information prompted the Water Board in 2003 to look at other potential upgradient sources. Since contaminant concentrations in groundwater were higher off-site on Glorene Avenue instead of on the Napa Auto property, a source was indicated east of the site. Multiple site investigations at the LTLW site confirm the Water Board's conclusion that it is the probable source affecting groundwater quality beneath the Napa site.

In conclusion, investigation data do not point to the Napa Auto property being a PCE source affecting or contributing to groundwater pollution in the drinking water aquifer. Therefore, it is reasonable to close the Napa Auto site in the Water Board's files.

You may contact me at (530) 542-5436 or lauri.kemper@waterboards.ca.gov if you have any questions concerning this matter.

LAURI KEMPER
ASSISTANT EXECUTIVE OFFICER

Enclosure: 1989 Waterloo Center DNAPL cross section

CC: PCE Interested Party mailing list

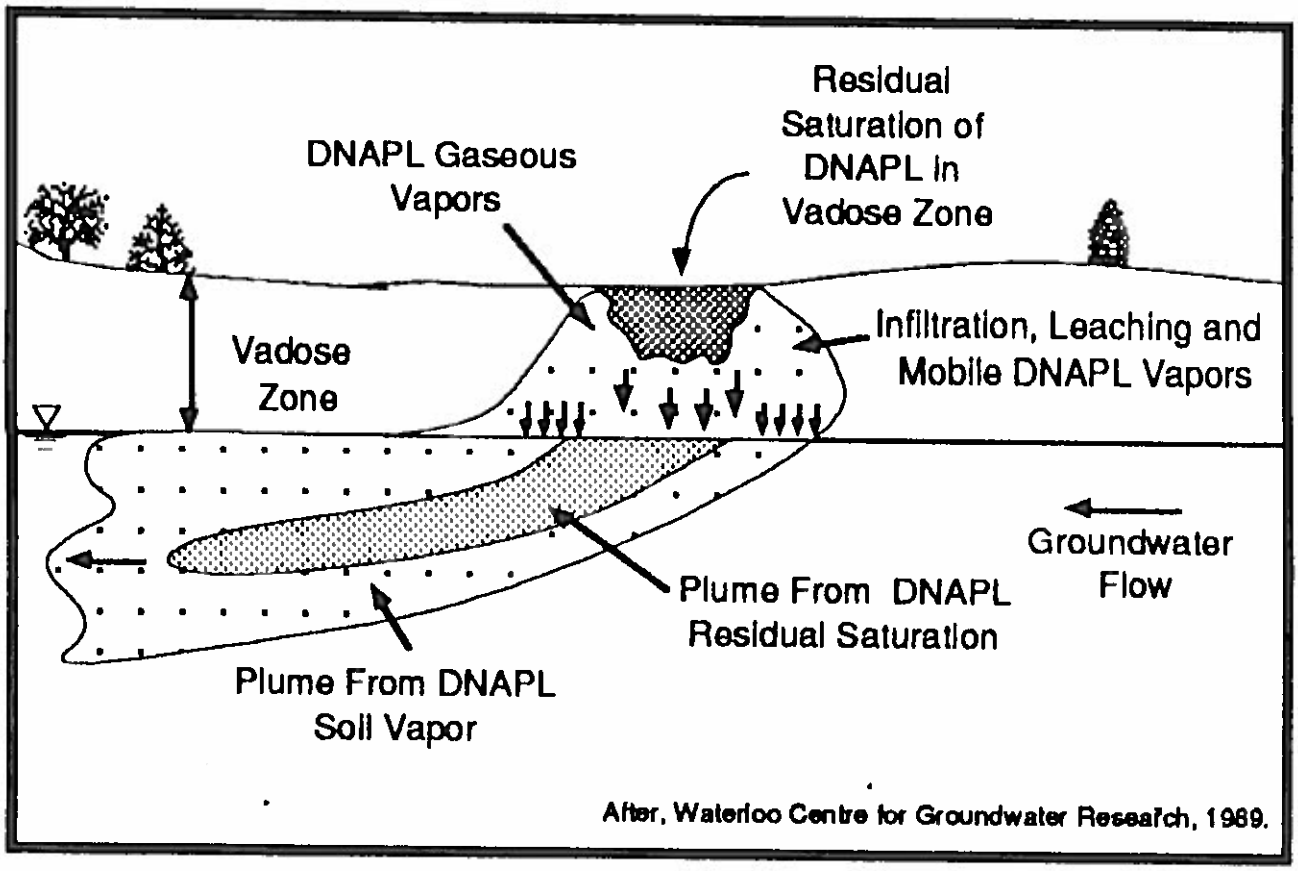


Figure 2. Migration of DNAPL vapors from the spill area and subsequent contamination of the soils and ground water.

(date)

Robert Novasel
c/o CAD Enterprises, LLC
3170 Highway 50, Suite 10
S. Lake Tahoe, CA 96150

Harry Krupp
c/o Lightnin II, Inc.
1835 Clydesdale Drive
Carson City, NV 89703

Mark Strong
c/o CAMCO
BOT65, Inc.
6620 Canyon Edge Rd
Pollock Pines, CA 95726-9219

NO FURTHER ACTION REQUIRED FOR THE FORMER BIG O TIRES STORE #147, 1961 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY (SCP CASE NO. T6S034)

RESCISSION OF CLEANUP AND ABATEMENT ORDER NOS. R6T-2003-0031 AND R6T-2003-0031A1

This letter confirms the completion of a site investigation for the property at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning spills and contamination are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the investigation carried out at your site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the hydrocarbon release(s) at the site is required. This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code.

Also at this time, the Water Board is rescinding the cleanup and abatement orders that were issued for the site. The rescinded Orders are Nos. R6T-2003-0031 and R6T-2003-0031A1.

Please contact our office if you have any questions regarding this matter.

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosure: Case Closure Summary

Case Summary

Lahontan Regional Water Quality Control Board - Region 6

South Lake Tahoe Office:
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Victorville Office:
14440 Civic Drive, Suite 200
Victorville, CA 92392

1. Lahontan Regional Water Quality Control Board Contact

Case Worker: Lisa Dernbach	**Phone:** (530) 542-5424
Date Form Completed: 3/25/2016	

2. Case Information

Lahontan Case #: SCP #T6S034	**Geotracker Global ID #**: SL0601729739
Site Name: Former Big O Tires Store #147	**Site Address**: 1961 Lake Tahoe Blvd, South Lake Tahoe CA 96150
Release Date: Not known	**County**: El Dorado
Water Board Permits and Cleanup and Abatement Orders Issued: CAO R6T-2003-0031 and R6T-2003-0031A1	

3. Responsible Parties

Fee Title Owner(s): **Roert Novasel** **c/o CAD Enterprises, LLC** **Owner Address(es):** 3170 Highway 50, Suite 10 South Lake Tahoe, CA 96150	**Designated Responsible Party(ies):** **Harry Krupp, c/o Lightnin II, Inc.** **CAMCO, BOT 65, Inc, c/o Mark Strong** **RP Address(es):** 1835 Clydesdale Dr. Carson City, NV 89703 6620 Canyon Edge Rd Pollock Pines, CA 95726-9219

4. Notifications

Date fee title ownership confirmed through county assessor's office? 9/25/15
How was fee title owner notified of proposed closure? US Mail
60-day comment period begin date: October 7,2015
Comments:

5. Unauthorized Release Description

Type of product released: Petroleum hydrocarbons and chlorinated hydrocarbons
Primary source/release mechanism: spills
Comments: Degraded gasoline, diesel, and motor oil detected in soil samples at 3 ft below ground surface (bgs) and lesser concentrations detected at >7.5 ft bgs. PCE of 42 ppb detected in one soil sample at 3 ft bgs but not deeper.

6. Site Setting

Site Location (describe general site area, e.g., located in a commercial area) and Site Land Use (current and any known planned use of the site): Former tire store and mechanics shop located in a commercial area. Business is currently a stove and fireplace store. No change to planned use is known.
Comments:

7. Media Specific Criteria

Groundwater Pathway Discussion: *(Explain why the groundwater contaminant plume poses, under current and reasonably anticipated near-term future scenarios, a low threat to human health, safety, and the environment.)*

Groundwater plume beneath this parcel previously contained 140 ppb Total Petroleum Hydrocarbons (TPH) as diesel, 31 ppb benzene, PCE 4,700 ppb, TCE 92 ppb, and DCE 130 ppb, all exceeding their respective drinking water standards.

Petroleum compounds (TPH and benzene) likely due to on-site spills from vehicle repairs. Solvent compounds (PCE, TCE, DCE) in groundwater is due primarily to historical releases at an upgradient site.

Low levels of TPH and benzene in groundwater do not pose an indoor air and inhalation threat to receptors. Solvent concentrations in groundwater are being remediated at the Lake Tahoe Laundry Works, across Lake Tahoe Boulevard, have significantly reduced over time, and shouldn't pose an inhalation or safety threat at the former Big O Tire Store property.

Based on the above information, the former Big O Tire Store property owner is no longer required to conduct investigations.

Vapor Intrusion to Indoor Air Pathway: (*Explain why existing site conditions are protective of human health, or describe what mitigation measures or institutional or engineering controls were used to reduce risk to human health to less than significant levels.)*

Concentrations of TPH and benzene in soil and groundwater do not pose a vapor intrusion threat and are protective of human health.

Direct Contact and Outdoor Air Exposure Pathways: (*Explain why existing site conditions are protective of human health and the environment, or the mitigation measures, institutional or engineering controls that reduce risk to human health and the environment to less than significant levels.)*

Existing conditions are protective of human health and the environment because groundwater contamination is about 16 feet below ground surface and there are no wells on site for people to have direct contact. Since the site is primarily covered with a concrete foundation and pavement, there are no outdoor air exposure pathways except in small landscape areas.

Rationale for No Further Action Required: (*Provide rationale to support No Further Action Required status*.)

Closure is justified since petroleum hydrocarbons in groundwater from the site have not been detected in nearby water supply wells and will attenuate over time. Closure is also justified since PCE detected at 3 feet in soil is too shallow to be affected by a rising water table, currently at 16 ft bgs. Thus, it is unlikely that this site added to solvent concentrations detected in groundwater in the past and currently.

Groundwater and soil remediation for solvent contamination is occurring at 1024 Lake Tahoe Blvd, at the Lake Tahoe Laundry Works site. These actions have significantly reduced solvent compounds in groundwater over time and no longer pose a threat to human health and the environment at the former Big O Tires Store property. Therefore, closure of this case is appropriate.

(date)

Seven Springs Limited Partnership
Christopher Blair
Christopher.blair@commercebank.com
Commerce Bank, N.A.
P.O. Box 419249
Kansas City, MO 64141-6248

RESPONSE TO COMMENTS ON 60-DAY NOTICE TO CLOSE THE BIG O TIRES STORE #147 CASE (T6S034), 1935 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff reviewed the December 7, 2015 letter summited by PES Environmental on behalf of the Commerce Bank, N.A., et al, and Seven Springs Limited Partnership, the entity that holds title to the South Y Shopping Center, on the 60-day notice for issuing a No Further Action (NFA) letter for the Big O Tires Store case. This letter responds to comments in PES Environmental's letter.

Background

The former Big O site is owned by CAD Enterprises LLC and included operation in the past of a tire and auto repair shop. The site is currently a fireplace and retail store. The property is located on the north side of Lake Tahoe Boulevard and west of South Y intersection.

In 2001, the Water Board required the property owner for the Big O site to conduct an investigation for evaluating the presence of tetrachloroethene in groundwater. In October 2001, soil and grab groundwater samples were collected from three temporary on-site borings from shallow (15 feet below ground surface [bgs]) and deeper (50 feet bgs) depths. Tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) were detected at maximum concentrations of 4,700 micrograms per liter (µg/L), 92 µg/L, and 130 µg/L, respectively, in the 50-foot groundwater samples. Each detected compound exceeded its respective drinking water standard of 5 µg/L, 5 µg/L, and 6 µg/L, respectively. Solvent compounds were also detected in the shallow water table samples taken at 15 to 20 feet bgs, but reported concentrations were at least one order of magnitude less than samples from the deeper depth. Only one of the six soil sample showed PCE concentrations: 0.015 mg/kg at 47.5 feet bgs from B-3.

Based on the results of the groundwater sampling, the Water Board issued Cleanup and Abatement Order No. R6T-2003-031 (CAO) in 2003 directing the owner, current operator, and past operator (collectively "responsible parties") of the Big O site to conduct a soil and groundwater investigation to further evaluate the presence of volatile organic compounds (VOCs) at the property and determine the source. The responsible parties petitioned the Order and denied they were a source for solvents and contributing to groundwater contamination.

Water Board staff met with the responsible parties many times over the next three years to attempt to resolve the matter. After site investigations were conducted at the Lake Tahoe Laundry Works, the Big O responsible parties agreed to conduct another investigation on their property. The Water Board issued Amended Cleanup and Abatement Order No. R6T-2003-031A1 (Amended CAO) on March 7, 2006 requiring the responsible parties to further investigate the site and submit a technical report. by deadlines that were amended from the original CAO.

In July 2006, the responsible parties conducted a supplemental soil and groundwater investigation consisting of eleven temporary borings on the Big O property as required by the Amended CAO. The results of this investigation were reported to the Water Board in a report by LFR, dated August 9, 2006. Of the 23 soil samples collected (mostly from depths between 3 and 7 feet bgs), only one showed concentrations of the solvent compounds examined in the 2001 investigation at or above the laboratory reporting limits. PCE was detected at 0.042 mg/kg at 3 feet bgs in boring B-9; PCE was not detected in the 6.5-foot soil sample. In contrast, petroleum hydrocarbons, mostly in the diesel and motor oil range, were detected in all but one of the soil samples, and mostly from 3 feet bgs.

Grab groundwater samples were collected in each boring at the water table, between 5.5 and 9 feet bgs. Solvent compounds were not detected in any of the water table samples. However, PCE was detected at 5.8 µg/L in boring B-13 in a sample collected below the water table between 11 to 14 feet bgs. No other solvent compounds were detected in groundwater from other borings. Petroleum hydrocarbons in the diesel range were detected just slightly above the 100 µg/L secondary drinking water standard in six of the twelve water samples. Benzene was also detected in six groundwater samples, with concentrations up to 31 µg/L at B-14. These benzene detections exceeded the drinking water standard of 1 µg/L. Due to the single detection of PCE in one soil and one groundwater sample, no concentration trend across the site can be determined. Benzene, however, increased in concentration in groundwater below the asphalt pavement from the north side of the building towards Tucker Avenue. Diesel concentrations of 140 µg/L or less in groundwater were fairly consistent across the site and did not indicate a trend. Overall, the data indicated the Big O site was not the source of solvents affecting groundwater quality and the Water Board did not require the responsible parties to engage in further actions; diesel and benzene concentrations in groundwater were not a threat to off-site receptors, more than 1,000 feet away, or justified remedial actions. The Water Board pursued another site in the direction indicated by the highest levels of VOCs in groundwater from the 2001 investigation, that being the Lake Tahoe Laundry Works (LTLW) on the south side of Lake Tahoe Boulevard. The petition to the State Water Board was eventually dropped.

Response to Comments

The PES Environmental comment letter outlines: (i) specific concerns Seven Springs et al has regarding the previous soil and groundwater investigations conducted at the Big O Site; and (ii) why it is inappropriate at this time to conclude that the Big O Site has not contributed to the PCE contamination found in groundwater beneath the Big O Site and/or the surrounding area in South Lake Tahoe. This letter responds to comments (shown in italics) in that letter using the same headings. Some comments had several issues to address, so we attempted to paraphrase what we believe are the issues you have identified.

Insufficient Site Characterization

Subsurface investigations conducted at the Big O Site have not adequately characterized the property and have not identified or assessed potential source areas as required by the Amended Cleanup and Abatement Order.

A. Soil Sampling

The Big O Site investigation was not conducted in accordance with the approved work plan. The work plan proposed soil sampling at indoor locations to assess whether discharges from floor drains, subsurface pipelines, brakes cleaning/parts washing sinks, and hydraulic lifts have occurred. As a result of the failure of the investigation to sample at all suspect sources, it has not been determined if releases from these on-site features occurred.

Response: The Water Board acknowledges that the 2006 site investigation was not conducted in strict adherence to the approved workplan. This is not unusual. Often times, unknown or unaccounted for site conditions physically prevent exact execution of a workplan during an investigation. However, soil samples were collected below the building and at four locations adjacent to suspected sources of discharges.

During the 2006 investigation, eight soil samples were collected at four indoor borings. Water Board staff accepted moving some of these locations due to the lack of access of sampling equipment or potential damage to interior structures, such as below grade pipelines. In these cases, with Water Board staff's permission, the boring locations were moved to accessible locations within the building and to the north side of the building outdoors, in what was the assumed downgradient groundwater flow location. Inside the building, borings were located near two hoists (B-10 and B-11), a floor drain (B-11), and two self-contained sinks used for parts cleaning (B-6 and B-12). The decision to move some borings to the downgradient groundwater flow location (B-7 and B-8) was a practical solution to rectify the physical limitations of collecting samples at potential PCE discharge locations by also collecting a water sample from the downgradient location. Data collected from a downgradient water sample would indicate whether the original indoor location was impacting water quality or not. The lack of solvent compound detections in soil and groundwater samples from all indoor borings indicate the lack of PCE sources at those locations and upgradient of those locations. This is especially true for samples collected at borings B-6 and B-12 which were located adjacent to the auto parts cleaning area where solvent compounds would have been used. Therefore, Water Board staff determined that the indoor investigation conducted within the shop at the Big O site was reasonable and provided data adequate to determine that no further indoor investigations were necessary.

The 2006 investigation also included soil and groundwater sampling at seven outdoor boring locations. The locations of two of the seven outdoor borings, B-4 and B-8, were selected where high VOC concentrations were detected in groundwater during the 2001 investigation. In 2006, no VOCs were detected in soil or shallow groundwater samples (less than 15 feet bgs) collected at these locations, indicating those outdoor locations were not the source of VOCs detected in the 2001 investigation. Two additional outdoor boring locations, B-13/13b and B-14, were sited close to the sewer lateral that connects to the sanitary sewer on Tucker Avenue. No VOCs were detected in soil and water table samples collected at these locations, indicating the sewer lateral was not the source of VOCs. The laboratory did report a PCE detection of 5.8 µg/L in a groundwater sample below the water table from 11 to 14 feet bgs in B-13. This result slightly exceeded the drinking water standard of 5 µg/L. In addition, the laboratory reported PCE of 0.042 mg/kg in soil at 3 feet

bgs in boring B-9 but no VOC detections in a soil sample at 6.5 feet bgs (or at the water table located between 5.7 to 8 feet bgs). This outdoor boring location was on the northwest corner of the property, near a hoist and tire storage area. The dearth of PCE in the 6.5-foot soil sample and in the water table sample at B-9 indicate that PCE found at boring B-9 at 3 feet bgs is not contributing to groundwater impacts. There also appears to be no connection between PCE detection in the soil sample at B-9 and the PCE detection in groundwater at B-13 given their 100 feet of separation and being in the assumed cross gradient to groundwater flow direction from each other.

To conclude, the lack of additional soil samples from suspected PCE discharge sources inside the shop area is not a reasonable basis to require the responsible parties to conduct additional investigations. The absence of detectable solvent compounds in soil and groundwater next to auto part cleaning areas, at locations previously showing high VOCs in groundwater, and downgradient of floor drains (B-7 and B-8) indicated there was no source in soil at the Big O site impacting or threatening to impact groundwater quality. Furthermore, the lack of solvent detection in the deeper soil sample and water table sample at B-9 indicates the northwestern hoist and tire storage area are not contributing to solvent concentrations in groundwater. The absence of PCE in soil samples and water table samples at B-13b and B-14 implies the sewer lateral is not a source of solvents to groundwater contamination. While PCE was detected at 5.8 µg/L in groundwater beneath the water table at B-13, the Water Board would not require a cleanup action as it does not a pose a threat to off-site receptors since PCE was not detected in the downgradient flow direction at B-14. Overall, the totality of the site data does not point to the Big O site as a solvent source contributing to impacts in groundwater. No additional data has been provided to refute this conclusion.

B. Groundwater Sampling

Groundwater sampling at the Big O site has had several major deficiencies:

- *Inadequate sampling of regional shallow and middle groundwater,*
- *No groundwater samples in close proximity to or downgradient of potential VOC releases,*
- *Lack of monitoring well installation to determine groundwater flow, and*
- *Extent of affected groundwater beneath site.*

As stated in the Background section, groundwater samples were collected at the site during both the 2001 and 2006 investigations. Specifically, samples were collected next to brake/parts washing sinks and downgradient of floor drains and hydraulic lifts. The only PCE detection in water table samples during the 2006 investigation was 5.8 µg/L at B-13, located about 20 feet north of the shop. The fact that no solvent compounds were detected in overlying soil samples at B-13 or in water samples in the adjacent boring B-13b and in downgradient boring B-14, indicate that if the site were a PCE source, it is not extensive or significant for solvents to migrate in groundwater from the property.

The single low PCE detection in a water table sample (out of 12 total water table samples) during the 2006 investigation indicates the absence of a source in soil at and above 8 feet bgs throughout the property. Such information also indicates the lack of PCE in soil gas, commonly associated with a PCE source in soil, even though no soil gas data was collected If the Big O site was a source, PCE would have been detected at the water table at some concentration in most of the boring locations in the 2006 investigation, even considering the water table rising 12 feet since the 2001 investigation. This is because soil vapor

associated with solvent releases will impact water quality even if residual contamination in soil is not in contact with the water table. Examples of this condition is seen at the LTLW site and other known PCE source sites. Thus, Water Board staff consider the nearly lack of on-site PCE detection in the water table significant enough to support the conclusion that no solvent source is affecting or contributing to groundwater pollution in the drinking water aquifer. Seven Springs has not provided any recent evidence suggesting that Big O s a source of solvent compounds. Without additional or new information, the Water Board cannot reasonably justify requiring additional site assessment or developing a site conceptual model.

Concentrations of PCE detected in shallow and middle water-bearing zones are shown on the attached Plates 1 and 2, respectively. As shown on Plate 1, PCE concentrations are elevated in the shallow water-bearing zone beneath the LTLW site and PCE concentrations decrease significantly moving north beneath Lake Tahoe Boulevard towards the Big O Site. PCE concentrations increase significantly in groundwater samples collected on the Big O Site, jumping from less than the laboratory reporting limit (1 µg/L) on the perimeter of the Big O Site to up to 130 µg/L on the interior of the site. These data suggest a PCE source may be present on the Big O Site and contradict a conclusion that the groundwater plume beneath the Big O Site.

Response: The data shown on the Plates referenced by Seven Springs do not represent sample results from the same time period as the 2001 and 2006 investigations and therefore cannot be used to argue concentration trends between different properties. This position is demonstrated by the difference in PCE concentrations detected at the water table during the two investigations conducted at the Big O site. During the 2001 groundwater investigation, PCE was detected up to 720 µg/L at the water table (20 feet bgs) in all three temporary on-site boring locations. During the 2006 investigation, PCE was detected in just one of the twelve groundwater samples at the water table at 5.8 µg/L groundwater sample from 11 to 14 feet bgs in B-13. The two-orders of magnitude discrepancy in PCE concentrations at the Big O site within a span of five years shows the seasonality and precipitation year changes in groundwater contaminants at a site. It is inappropriate to compare PCE detections in groundwater at the Big O site during the 2001 and 2006 investigations to PCE detections in groundwater from the LTLW site during 2005 and 2008. PES' comment is not supported by the evidence where the data they rely on is not for contemporaneous data.

Furthermore, as depicted on Plate 2, concentrations of PCE on the LTLW site in the middle water-bearing zone are significantly lower than the concentrations of PCE detected beneath the Big O Site. The data show that concentrations of PCE increase as groundwater flows south to north in the middle water-bearing zone, with elevated levels present beneath the Big O Site (up to 3,000 µg/L). These data strongly suggest the presence of a source of PCE on the Big O Site, as the concentrations present beneath the Big O Site are an order of magnitude greater than the upgradient concentrations at LTLW.

Response: Water Board staff agrees with the statement that PCE concentrations were greater in the middle-depth (47 to 50 feet) of groundwater samples collected from beneath the Big O site compared to concentrations from the water table[1], which were one order of magnitude less in the 2001 investigation. Yet we disagree that this information indicates the Big O site is a solvent source or is contributing to groundwater pollution.

Text books and research articles[2] on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site (enclosure). As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the greatest PCE concentrations were detected in shallow wells at the LTLW site and then at middle-depth monitoring wells at the Big O site, about 200 feet away.

The reason for VOC detection at different depths in the aquifer at the Big O site compared to the LTLW site is explained in several ways. The first explanation is depicted in the enclosed figure[3] showing a cross section of DNAPL fate and transport in groundwater. As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L) were detected near the water table at the LTLW site but in middle-depth groundwater samples at the Big O site, about 200 feet away.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW site during the 1970s, it would have been affected by the pumping of nearby supply wells until they were turned off in 2001[4]. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. This would explain PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-6 (between the Napa and LTLW sites) and also PCE detections beneath the Napa site at 48 ft bgs. After the Clement well ceased operating in 2001, groundwater flow would have shifted to a more northerly direction as seen today. This interpretation is supported by the Fourth Quarter 2009 Groundwater Monitoring Report for the LTLW site, which states, “Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data.” Therefore, VOCs detected in the middle depth of the aquifer beneath Lake Tahoe Boulevard and the Napa site are interpreted as being from the LTLW site.

[1] no shallow- or middle-bearing water zones are recognized at the site; all water samples were collected from the same unconfined aquifer.

[2] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research

[3] 1989 Waterloo Centre for Groundwater Research

[4] February 10, 2016 letter by Ivo Bergsohn, South Tahoe Public Utility District

Finally, the Consideration of No Further Action Required notification indicates that PCE concentrations at the Big O Site have been reduced over time to 6 µg/L due to remedial actions conducted at the LTLW site. Based on the lack of additional groundwater sampling conducted at the Big O Site since 2006 and the lack of groundwater monitoring wells required by Amended Order No. R6T-2003-031A1, it does not appear there is a basis for this conclusion. Based on the detection of VOCs in groundwater beneath the Big O Site, groundwater monitoring wells should be installed at the site as required by Requirement 3.3 of Order No.

Response: Water Board staff agrees with the comment that there has been no recent data collected at the Big O site. The cited PCE concentration of 6 µg/L in the Closure Summary was a rounded-up detection from a monitoring well on the LTLW site close to Lake Tahoe Boulevard. The most recent Big O on-site data was collected during the 2006 investigation while the most recent off-site data was collected in 2008 by E2C Remediation from a temporary boring (LW-MW-7) on the north side of Lake Tahoe Boulevard, containing 45 µg/L PCE at 11 feet bgs and 83 µg/L PCE at 15 feet bgs. The above discussions indicating the Big O site is not a source contributing to groundwater pollution obviate the need to require monitoring well installation at the Big O site per the Amended CAO R6T-2003-031A1. Therefore, the Closure Summary will be revised to reflect that current PCE concentrations beneath the Big O site are unknown.

Administrative Deficiencies

PES' letter comments on administration deficiencies in RWQCB's effort to establish site closure that render impossible the public's ability to offer comment on RWQCB's action. For instance, the Consideration of No Further Action Required notification was not provided to Seven Springs, an interested party, until November 10, 2015, over 30-days into the comment period. In addition, the Consideration of No Further Action Required notification indicates that the address of the Napa Auto Site is 1061 Lake Tahoe Boulevard, not 1961 Lake Tahoe Boulevard. We further note that as of the date of this letter, the RWQCB Geotracker webpage indicates that the Big O site was closed in February 2015. Issuance of a No Further Action letter under these circumstances would be inappropriate.

Response: Adequate notification was issued to the public for commenting on the Consideration of NFA for the Big O site. Hard copies of the Notification, dated October 7, 2015, were mailed to an extensive mailing list of PCE interested parties maintained by the Water Board. An email containing the Notification was sent to Christopher Blair of the Commerce Bank, representing Seven Springs, on October 7, 2015, at the last known email address obtained by Water Board staff. The email however was bounced back as being "undeliverable." It took several more attempts and contacts to other parties before a more current email address for Mr. Blair was obtained and another email with the Notification sent out to him. In the meantime, email notifications to Seven Springs' consultant, PES Environmental, and attorney, Alejandro Bras, were not bounced back. These last two contacts to Mr. Blair's representatives are considered adequate notice for Seven Springs. In addition, the Notification was posted on Geotracker the same day. Also in Geotracker, the heading "Cleanup Status" revealed the site was "open and eligible for closure as of 10/1/2015." While there was an error in the electronic mailing address listed in the Notification, the site name, case number, and responsible parties were listed correctly, prompting written comments from PES and another party along with verbal comments from the property owner (the latter being in favor of site closure). Therefore, the Water Board's notification to the public was sufficient for closing the Big O site.

Conclusion

The two site investigations conducted at the Big O site were reasonable and diligent investigations. The investigation results indicate to Water Board staff that the site was not and is not a source of solvent contamination contributing to groundwater impacts. With two exceptions, solvent compounds were not detected in the twenty-nine soil samples collected across the site in both investigations. The exceptions being 0.015 mg/kg PCE in the 47.5-foot soil sample at B-13 and 0.042 mg/kg PCE in the 3-foot soil sample at B-9. Neither of these detections, however, point to a source at the Big O site affecting groundwater quality. The absence of solvent compounds in soil above 47.5 feet in B-1 suggests it migrated with groundwater from an upgradient source. The lack of PCE in the 6.5-foot soil sample and in the water table sample at B-9 indicates that PCE in the 3-foot sample is not contributing to groundwater impacts.

Groundwater impacts also do not point to the site being a solvent source. PCE concentrations in groundwater did not increase across the site in the downgradient flow direction as would have occurred with an on-site solvent source. During the 2001 investigation, the highest PCE concentration of 4,700 µg/L was reported at 50 feet bgs, and in the upgradient groundwater flow direction to the Big O building. On the downgradient side of the Big O building, PCE reduced to 1,900 µg/L, indicating contaminants beneath the building were not a solvent source. During the 2006 investigation, no PCE trend in groundwater was established based on only one detection at boring B-13. Since no VOCs were detected in overlying soil samples at B-13 or in water samples in the adjacent boring B-13b and in downgradient boring B-14, this indicates that PCE contamination is not extensive or significant for solvents to migrate in groundwater from the property.

Overall, the totality of the data from both investigations indicate an off-site solvent source affecting groundwater that migrated beneath the Big O site as evidenced by 1) the near lack of detected solvent contamination in on-site water table samples during the 2006 investigation, 2) higher PCE concentrations detected in the upgradient flow direction to the shop area during the 2001 investigation, and 3) an order of magnitude higher in concentration of solvent compounds in deeper groundwater compared to shallow groundwater. Multiple site investigations at the LTLW site confirm the Water Board's conclusion that it is the probable solvent source affecting groundwater quality beneath the Big O site.

In conclusion, investigation data do not point to the Big O site being a PCE source affecting or contributing to solvent pollution in the drinking water aquifer beyond its property. And while low levels of TPH as diesel and benzene were detected in groundwater beneath the site, they are not expected to migrate far or threaten active water supply wells. Thus, the Big O site meets the criteria for closure under the state's LTLC.

You may contact me at (530) 542-5436 if you have any questions concerning this matter.

LAURI KEMPER
ASSISTANT EXECUTIVE OFFICER

Enclosure: 1989 Waterloo Center DNAPL cross section

CC: PCE Interested Party mailing list

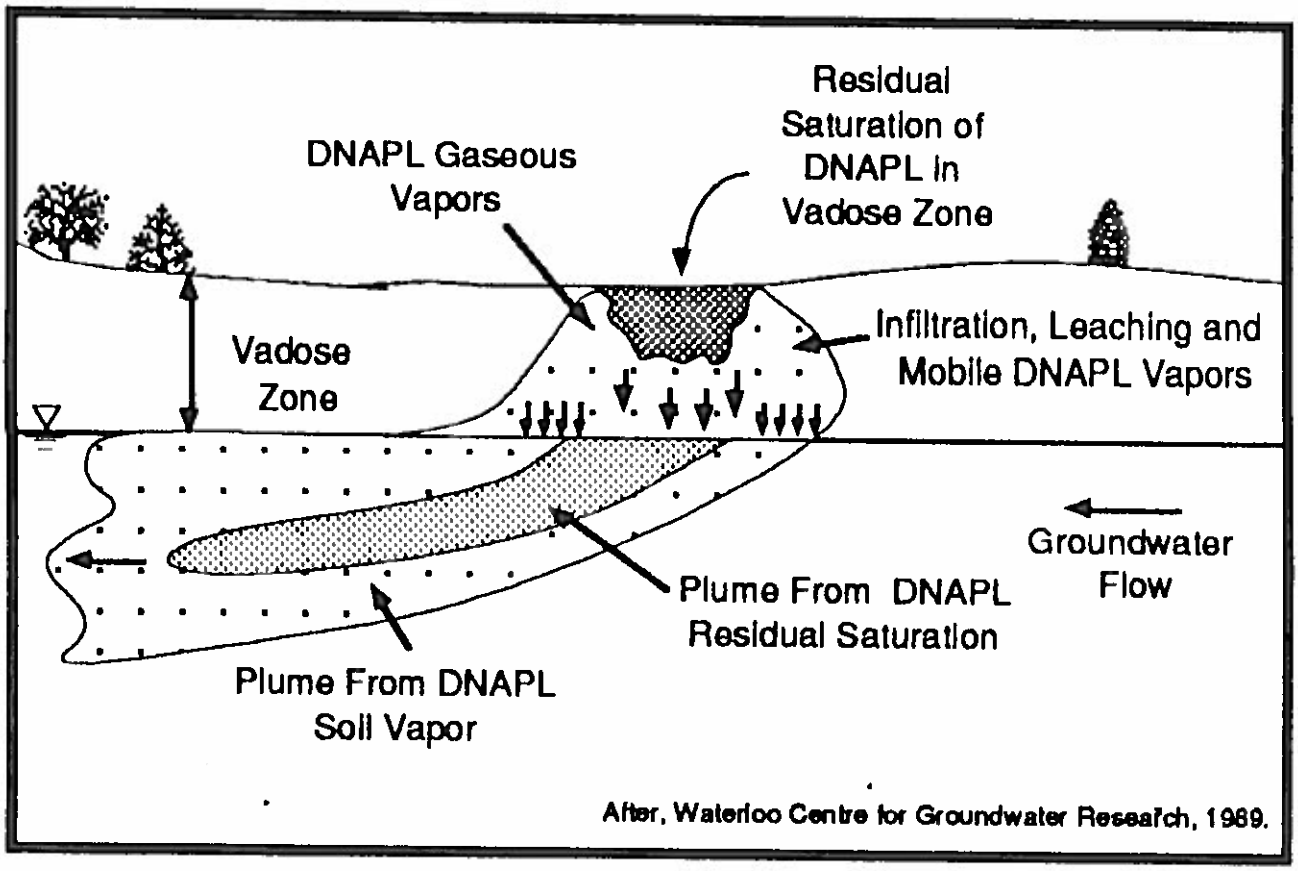


Figure 2. Migration of DNAPL vapors from the spill area and subsequent contamination of the soils and ground water.

(date)

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RESPONSE TO COMMENTS ON 60-DAY NO FURTHER ACTION NOTICE, BIG O TIRE STORE #147 CASE (T6S034), 1961 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff reviewed the December 3, 2015 letter summited by Erler & Kalinowski, Inc. ("EKI") on behalf of the Fox Capitol Management Corporation, the successor to the entity that originally held title to the South Y Shopping Center, on the 60-day notice for issuing a No Further Action (NFA) letter for the Lakeside Big O Tire Store case. This letter responds to comments in EKI's letter.

Background

The former Big O site is owned by CAD Enterprises LLC and included operation in the past of a tire and auto repair shop. The site is currently a fireplace and retail store. The property is located on the north side of Lake Tahoe Boulevard and west of South Y intersection.

In 2001, the Water Board required the property owner for the Big O site to conduct an investigation for evaluating the presence of tetrachloroethene in groundwater. In October 2001, soil and grab groundwater samples were collected from three temporary on-site borings from shallow (15 feet below ground surface [bgs]) and deeper (50 feet bgs) depths. Tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) were detected at maximum concentrations of 4,700 micrograms per liter (µg/L), 92 µg/L, and 130 µg/L, respectively, in the 50-foot groundwater samples. Each detected compound exceeded its respective drinking water standard of 5 µg/L, 5 µg/L, and 6 µg/L, respectively. Solvent compounds were also detected in the shallow water table samples taken at 15 to 20 feet bgs, but reported concentrations were at least one order of magnitude less than samples from the deeper depth. Only one of the six soil sample showed PCE concentrations: 0.015 mg/kg at 47.5 feet bgs from B-3.

Based on the results of the groundwater sampling, the Water Board issued Cleanup and Abatement Order No. R6T-2003-031 in 2003 directing the owner, operator, and past operator of the Big O site to conduct a soil and groundwater investigation to further evaluate the presence of volatile organic compounds (VOCs) at the property and determine the source. The responsible parties petitioned the Order and denied they were a source for solvents and contributing to groundwater contamination. Water Board staff meet with the responsible parties many times over the next three years to attempt to resolve the matter. The Water Board issued Amended Cleanup and Abatement Order No. R6T-2003-031A1 on March 7, 2006 requiring the responsible parties to further investigate the site and submit a technical report.

In July 2006, a supplemental soil and groundwater investigation consisting of eleven temporary borings was conducted on the Big O property. The results of this investigation were reported to the Water Board in a report by LFR, dated August 9, 2006. Of the 23 soil samples collected (mostly from depths between 3 and 7 feet bgs), only one showed concentrations of the solvent compounds from the 2001 investigation at or above the laboratory reporting limits. PCE was detected at 0.042 mg/kg at 3 feet bgs in boring B-9; no PCE was detected in the 6.5-foot soil sample. In contrast, petroleum hydrocarbons, mostly in the diesel and motor oil range, were detected in all but one of the soil samples, and mostly from 3 feet bgs. Grab groundwater samples were collected at the water table, between 5.5 and 9 feet bgs, in each boring. Solvent compounds were not detected in any of the water table samples. However, PCE was detected at 5.8 µg/L in boring B-13 from a sample between 11 to 14 feet bgs which was below the water table. No other solvent compounds were detected in groundwater from other borings. However, petroleum hydrocarbons in the diesel range were detected just slightly above the 100 µg/L secondary drinking water standard in six of the twelve water samples. Also, benzene was detected in six groundwater samples, with concentrations up to 31 µg/L at B-14; benzene detections exceeded its drinking water standard of 1 µg/L. Due to the single detection of PCE in soil and groundwater each, no concentration trend across the site can be determined. Benzene, however, increased in concentration in groundwater below the asphalt pavement from the north side of the building towards Tucker Avenue. Diesel concentrations of 140 µg/L or less in groundwater were fairly consistent across the site and did not indicate a trend. Overall, the data indicated the Napa site was not the source of solvents affecting groundwater quality and the Water Board did not required further actions. The Water Board pursued another site in the direction indicated by the highest levels of VOCs in groundwater from the 2001 investigation, that being the Lake Tahoe Laundry Works (LTLW) on the south side of Lake Tahoe Boulevard.

Response to Comments

The EKI comment letter states the determination of No Further Action ("NFA") for the Big O site by the Water Board is not warranted since it is: (a) based on soil and groundwater data that are 9 to 14 years old; (b) based on inadequate site investigations by Big O; (c) counter to the findings and conclusions issued by the Water Board in the past; (d) premature in light of other investigations that are ongoing in the area; and conflict's with the Water Board's Low Threat Underground Storage Tank Case Closure Policy (LTCP). This letter responds to comments (shown in italics) in that letter using the same headings. Some comments had several issues to address, so we attempted to paraphrase what we believe are the issues you have identified.

A. The Water Board is Relying on Old Data

No more recent subsurface sampling has been conducted on the Big O site since the 2006 investigation. The Water Board, in its closure evaluation of the Big O site, is relying on data that are 9 to 14 years old which may not accurately represent current soil, soil vapor,

and groundwater conditions on the Big O site. More recent subsurface data from the Big O site should be collected and evaluated before the Water Board considers the Big O site for closure.

Response: Water Board staff agrees with the comment there has been no recent data collected at the Big O site. The most recent on-site data was collected during the 2006 investigation. And the most recent off-site data was collected in 2008 by E2C Remediation from a temporary boring (LW-MW-7) on the north side of Lake Tahoe Boulevard, containing 45 µg/L PCE at 11 feet bgs and 83 µg/L PCE at 15 feet bgs.

Water Board staff's review of the Big O 2001 and 2006 investigation results found there were sufficient soil and groundwater samples collected to provide an evaluation of site conditions at that time. The data indicated the site was not a source contributing to solvent impacts to groundwater quality. The data further indicated that an off-site solvent source existed to the south of the Big O site, as supported by the 2008 Lake Tahoe Boulevard results. The discussions below go into more detail for how Water Board staff reached these conclusions. Since the data from these prior Big O site investigations were valid and indicated no solvent source existed, there is no justification to require the Big O property owner to collect additional data. Water Board staff waited until we had adequate investigation data from an off-site source(s) before pursuing case closure for the Big O site. Monitoring well data from the Lake Tahoe Laundry Works site since 2008 indicate it is the source of solvents affecting groundwater that migrated beneath the Napa site. Now that we have that information, it is appropriate to close this case.

B. The Water Board is Relying on an Inadequate Investigation by Big O

The prior subsurface investigations of the Big O site were incomplete, as summarized below. Many borings proposed in the workplan for collecting soil and groundwater *samples from inside the shop building near suspect PCE discharge locations were later moved during the 2006 investigation…these locations included the lube pit, floor drains, the above ground storage tank for waste fluids.*

Response: The Water Board acknowledges that the 2006 site investigation was not conducted in strict adherence to the approved workplan. This is not unusual. Often times, unknown or unaccounted for site conditions prevent exact execution of a workplan during an investigation.

During the 2006 investigation, eight soil samples were collected at four indoor borings. Water Board staff approved moving some of these locations due to the lack of access of sampling equipment or potential damage to interior structures, such as below grade pipelines. In these cases, the borings were moved to what was the assumed downgradient groundwater flow location. The thinking at that time was if samples could not be collected at potential PCE discharge locations, a water sample from the downgradient location would tell us whether the original indoor location was impacting water quality or not. The lack of solvent compound detections in soil and groundwater samples from all indoor borings indicate the lack of PCE sources at and upgradient of those locations. This is especially true for samples collected at borings B-6 and B-12 which were located adjacent to the auto parts cleaning area where solvent compounds would have been used. Therefore, the indoor investigation conducted within the shop at the Big O site was the best that could be done at that time. Water Board staff did not see the benefit that might be gained by requiring additional indoor investigations.

The 2006 investigation also included soil and groundwater sampling at seven outdoor boring locations. Two of the seven outdoor borings, B-4 and B-8, were sited where high VOC concentrations were detected in groundwater during the 2001 investigation. No VOCs were detected in soil or shallower groundwater samples collected at these locations, indicating those outdoor locations were not the source of VOCs detected in the 2001 investigation. Two additional outdoor boring locations, B-13/13b and B-14, were sited close to the sewer lateral that connects to the sanitary sewer on Tucker Avenue. No VOCs were detected in soil and water table samples collected at these locations, indicating these outdoor locations were not the source of VOCs. The laboratory did report a PCE detection of 5.8 µg/L in a groundwater sample from 11 to 14 feet bgs in B-13, below the water table. This result slightly exceeded the drinking water standard of 5 µg/L. In addition, the laboratory reported PCE of 0.042 mg/kg in soil at 3 feet bgs in boring B-9 but no VOC detections in a soil sample at 6.5 feet bgs or at the water table at 5.7 to 8 feet bgs. This outdoor boring location was on the northwest corner of the property, near a hoist and tire storage area. The dearth of PCE in the 6.5-foot soil sample and in the water table sample at B-9 indicate that PCE in shallow soil is not contributing to groundwater impacts. There also appears to be no connection between PCE detection in the soil sample at B-9 and the PCE detection in groundwater at B-13 given their 100 feet of separation and being cross gradient to groundwater flow direction from each other.

To conclude, the lack of soil samples from suspected PCE discharge sources inside the shop area is not enough reason to not close the case. The absence of detectable solvent compounds in soil and water table samples next to auto part cleaning areas, at locations previously showing high VOCs in groundwater, and downgradient of floor drains (B-7 and B-8) indicated there was no source in soil at the Big O site impacting or threatening groundwater quality. Furthermore, the lack of solvent detection in the deeper soil sample and water table sample at B-9 indicates the northwestern hoist and tire storage area are not contributing to solvent concentrations in groundwater. Also, the absence of PCE in soil samples and water table samples at B-13/13b and B-14 implies the sewer lateral is not a source of solvents to groundwater contamination. And while PCE was detected at 5.8 µg/L in groundwater beneath the water table at B-13, the Water Board would not require a cleanup action since it was close to the drinking water standard and is not a threat to off-site receptors considering that PCE was not detected in the downgradient flow direction at B-14. Overall, site data does not point to the Big O site as being a solvent source contributing to impacts in groundwater. No alternate data has been provided since to refute this conclusion.

- *No groundwater monitoring wells were installed at the Big O site in both upgradient and downgradient locations to obtain representative and reproducible groundwater sample results.*
- *Additional assessment appears warranted, including the preparation of a conceptual site model.*

Response: During the 2006 investigation, PCE was detected in just one of the twelve groundwater samples collected from on-site boring locations. As mentioned above, the detection of 5.8 µg/L PCE at B-13 would not prompt a cleanup action. The lack of PCE detection in the eleven water table samples indicates the absence of a source in soil at and above 8 feet bgs throughout the property. The information also indicates the lack of PCE in soil gas, commonly associated with a PCE source in soil. If the Big O site had

been a source, PCE would likely have been detected at some concentration at the water table in most of the boring locations during the 2006 investigation due to soil vapors. Soil vapor associated with solvent releases continues to impact water quality even if residual contamination in soil is not in contact with the water table. Examples of this condition is seen at the LTLW site and other known PCE source sites. Thus, the near lack of on-site PCE detection in the water table is significant evidence to support the Water Board's conclusion that no solvent source is affecting or contributing to groundwater pollution in the drinking water aquifer. Without additional evidence pointing to the Big O site as a source of solvent compounds, the Water Board has no reasonable basis to require additional site assessment with monitoring wells or development of a site conceptual model.

C. Water Board Indicated that Big O Site is a Source for PCE in Middle Zone Groundwater

In its Staff Report, dated 22 August 2005… the Water Board concluded that PCE in middle zone groundwater at the Big O site may have originated from releases at the Big O site, since PCE concentrations in groundwater increased from the upgradient (west) side of the site to the middle of the site. Since preparation of the Water Board Staff Report in 2005, no more recent middle zone groundwater data have been generated that would be expected to alter the Water Board's conclusions and opinions regarding the source for PCE in groundwater on the Big O site.

In its 22 February 2007 letter, the Water Board stated that the Big O site potentially contributed to groundwater PCE contamination in the South Y area, and that as a result, the Water Board could not issue a closure or no further action letter related to the Big O site. No additional information for the Big O site has been presented that would be expected to alterthe Water Board's conclusion.

Response: When the 2005 Staff Report by Ms. Dernbach and the February 22, 2007 letter were written, the exact groundwater flow direction was not known at the Big O site or general area south of the South Y intersection. All groundwater investigations up to that time consisted of grab groundwater samples from temporary borings, with nothing surveyed to a known datum. It was also believed that the groundwater flow direction in this area of Tahoe Valley was northeasterly, towards the South Y intersection, which is why the words "may," "likely, "unlikely," and "potentially" were used in the 2005 Staff Report and February 22, 2007 letter.

Since then, monitoring wells were installed at the LTLW in 2008 which have provided more exact groundwater flow direction information. Over the years, monitoring reports submitted for the LTLW have shown the groundwater flow directions ranging from northwest[1] to the north-northeast[2]. Overall, these reports state that groundwater flow is in the northerly direction. The general flow direction applies over the entire unconfined aquifer and would not be different in different depths as groundwater movement is not being influenced by pumping since nearby municipal and domestic wells had ceased operating by 2000.

[1]September 2008

[2]Fourth Quarter 2009

The newer groundwater flow direction information has changed Water Board staff's interpretation of PCE source sites and off-site affected properties since the February 22, 2007 letter. For instance, groundwater flow from the Big O site is now interpreted to move in a northerly direction towards Tucker Avenue instead of easterly towards the LTLW site and South Y intersection. If the shop at the Big O site had been a solvent source, we would have expected to see higher VOC concentrations in the groundwater downgradient flow direction towards the north compared to upgradient concentrations. The only PCE detection in water table samples during the 2006 investigation was 5.8 µg/L at B-13, located about 20 feet north of the shop. The fact that no VOCs were detected in overlying soil samples at B-13 or in water samples in the adjacent boring B-13b and in downgradient boring B-14, indicate that if the site were a PCE source, it is not extensive or significant for solvents to migrate in groundwater from the property.

VOC concentrations detected in groundwater during the 2001 investigation also do not point to the Big O site as a source of PCE contamination. The highest concentrations detected in that investigation were 4,700 µg/L PCE at 50 feet bgs and 720 µg/L PCE at 20 feet bgs in boring B-2. No VOCs were detected in soil samples collected at the same depths as water samples at B-2. Now that we know the direction of groundwater flow is mostly towards the north, we now know that boring B-2, located on the south side of the Classic Que building, was sited up and cross gradient to the shop on the Big O site. Such information does not point to the shop as a PCE source. If the shop were a PCE source, related soil vapor trapped beneath the paved ground surface could have impacted shallow groundwater quality in directions different from the downgradient flow direction towards the north. In this instance, we would have expected to see higher PCE detections in shallower water samples compared to the deep water sample. But since this was not the case at B-2, the combination of data and information indicates an off-site source in the southerly direction which migrated with groundwater to the Big O site.

The newer groundwater flow direction information also indicates that contaminated groundwater from source areas on the LTLW site have migrated in a northerly direction. Source areas include the solvent hot spot in soil to an unknown depth near monitoring well MW-1, beneath the building foundation, and areas affected by soil gas detected at the northeastern end of the shopping center. Contaminated groundwater migrated across the street towards 1961 Lake Tahoe Boulevard (former Big O Tires Store) and 1959 Lake Tahoe Boulevard (Placer Title), with diffused concentrations detected along Glorene Avenue. This interpretation is consistent with the results of the 2008 LTLW investigation findings[3] showing higher VOC concentrations (2,200 µg/L PCE) in groundwater near Lake Tahoe Boulevard and lower concentrations north towards Tucker Avenue (760 µg/L PCE) and west towards the western property line of the Big O site (210 µg/L PCE).

The reason for VOC detections at different depths in the aquifer at the Big O site compared to the LTLW site is explained in several ways. Text books and research articles on the fate and transport of solvent contamination show the greatest concentrations are seen higher in the aquifer at the source site[4] (enclosure). As dissolved contaminants migrate in groundwater away from the source, they are pulled downward typically due to

[3] September 22, 2008 E2C Remediation, Site Investigation Report of Findings

[4] 1989 Cross section of DNAPL fate and transport from the Waterloo Center for Groundwater Research

one or more of these factors: accumulation of annual precipitation, vertical gradient by natural forces, and influence by a pumping well or wells. At off-site locations, dissolved solvent compounds that migrated from another source are typically detected at higher concentrations with depth in the aquifer compared to the water table. This explains why the highest PCE concentrations (>5,000 µg/L in 2009) were detected near the water table at the LTLW site but in middle-depth groundwater samples at the Big O site, about 250 feet away.

The second explanation for VOC detections in the middle depth is that when the solvent releases first occurred at the LTLW site during the 1970s, it would have been affected by pumping of nearby supply wells until they were turned off in 2000. The pumping capture zone from the Clement municipal supply well, located 1,100 feet to the west-northwest, could easily have pulled PCE contamination deeper in the aquifer. After the Clement well ceased operating in 2000, groundwater flow would have shifted to a more northerly direction as seen today. This would explain high PCE detections at 44 ft bgs beneath Lake Tahoe Boulevard in boring GW-7 (between the Big O and LTLW sites) in the 2004 LTLW investigation and also at 50 ft bgs beneath the Big O site in 2001. This interpretation is supported by the Fourth Quarter 2009 Groundwater Monitoring Report for the LTLW site, which states, "Although the groundwater gradient appears to be northerly, this flow direction does not match up with the groundwater chemical data." Therefore, VOCs detected in the middle depth of the aquifer beneath Lake Tahoe Boulevard and the Big O site are interpreted as being from the LTLW site.

D. The Water Board's Proposed Action is Premature Given Ongoing Site Investigations

Groundwater investigations were recently completed on behalf of the Water Board in an area downgradient, i.e., northeast, of the Big O site in accordance with a Work Plan prepared by URS Corporation, dated 8 October 2015. We understand that the results of these investigations will not be available to the public until the first week of January 2016. The results of the Water Board investigations may provide information relevant to the reported groundwater conditions on the Big O site and closure consideration of the Big O site.

Response: The results of the fall 2015 PCE investigation conducted by URS did not reveal data or information relevant to groundwater conditions at the Big O site. The URS investigation report, dated January 19, 2016, contained PCE and total petroleum hydrocarbons (TPH) data from temporary borings and monitoring wells in the western area of South Lake Tahoe, on the north side of the South Y. The closest sample location to the Big O site containing PCE at concentrations exceeding the drinking water standard of 5 µg/L was at MW-4A/B, located on Eloise Avenue, 1,800 feet north of the Big O site. In MW-4B with a screen interval of 35 to 50 feet bgs, the laboratory reported 150 µg/L PCE and 81 µg/L TPH as gasoline. Due to the significant distance between the two locations and the lack of in-between samples at similar depths, it is impossible to know whether PCE detected in MW-4B is from a potential source at the Big O site. Since the 2006 Big O site investigation did not detect TPH as gasoline in any of the twelve water table samples, the site is unlikely the source of TPH as gasoline detected in MW-4B. Other lines of evidence from the 2001 and 2006 investigations, as stated above, indicate the Big O site is not a PCE source affecting or contributing to groundwater pollution in the drinking water aquifer. Therefore, there is no information in the PCE investigation report to justify delaying closure of the Big O site. Unless new information is brought forward that the

Napa responsible parties did contribute PCE to groundwater through groundwater data or historical records become available that document a PCE source at the Napa site, it is appropriate for the Water Board to determine that no further action is necessary to attain water quality objectives at this Site.

In addition, the Water Board has issued a draft cleanup and abatement order to Seven Springs Limited Partnership and Fox that would require them to undertake an investigation of PCE contamination in an area that includes the Big O site and downgradient areas. The parties' responsibility for that contamination is in dispute, in part because the parties contend that the Big O site is a source of the contamination. To be fair to parties, the Water Board should not take any action to absolve Big O of responsibility for contamination at its site while that dispute is pending. Furthermore, if the draft order is finalized, the Water Board should review the results of any additional investigation required by the order before concluding that closure of the Big O site is warranted.

Response: Previous investigation data for the Big O site was valid when collected and did not indicate an on-site PCE source contributing to groundwater pollution. Groundwater data from 2001 indicated an off-site solvent source in the southerly direction from which contaminated groundwater migrated beneath the Big O site. Data from the 2006 investigation verified this interpretation. More recent investigations at the LTLW site, as discussed above, appear to corroborate this determination. Since no new data or information has been provided to refute this conclusion, it is reasonable and justified to issue a NFA letter for the Big O site. The Water Board has the ability re-open any closed case should new information be provided indicating the site is a source impacting groundwater quality or public health.

E. The Proposed Action Does Not Comply with Water Board Policy

…(T)he Big O site does not meet closure requirements under LTCT. The site does not consist of only petroleum, the sources for the releases have not been identified, a conceptual site model has not been developed, and the nature, extent, and mobility of petroleum and PCE releases have not been assessed fully.

Response: The Big O site does meet closure requirements under the LTCT policy. Since the site is not a PCE source impacting or contributing to pollution in groundwater beyond the property, the site consists only of petroleum products. This makes the site eligible under the LTCT policy. And while concentrations of TPH as diesel, gasoline, and motor oil were detected in many soil samples across the site, only TPH as diesel was detected in groundwater samples. The high water table in 2006 would indicate a worse-case scenario for potential impacts to groundwater quality. Therefore, it is unlikely that TPH as gasoline and motor oil would be detected in groundwater after 2006 when the water table lowered. This leaves just TPH as diesel as the constituent of concern. In the nine water samples where TPH as diesel was detected, the average concentration was 109 µg/L and the maximum concentration was 140 µg/L. Both these numbers are just slightly above the secondary MCL of 100 µg/L. The other potential threat in groundwater was benzene at 31 µg/L in B-14 and 12 µg/L in B-13b, which exceeded the drinking water standard of 1 µg/L.

It is Water Board staff's experience that low levels of TPH as diesel and benzene in groundwater, such as seen at the Big O site, do not migrate very far: less than 500 feet.

Since there are no active receptors within that distance, the site complies with LTCT requirements. Water Board staff have further verified on public databases that water supply wells located within a half-mile distance of the Big O site and operational in 2006[5], showed no detection of these compounds. In addition, domestic well sampling at 883 and 903 Eloise Avenue in 2014 and 2015 did not reveal BTEX constituents. Thus, the mobility of past petroleum releases has been assessed and found to not be a threat to receptors in the future. Since the Big O site ceased being a tire and auto store in 2008 when it became a fireplace retail store, the source of petroleum releases has also ceased. The site therefore meets all conditions under the LTCT policy and can be issued a NFA letter.

Conclusion

The two site investigations conducted at the Big O site were reasonable and diligent investigations. The investigation results indicate to Water Board staff that the site was not and is not a source of solvent contamination contributing to groundwater impacts. With two exceptions, solvent compounds were not detected in the twenty-nine soil samples collected across the site in both investigations. The exceptions being 0.015 mg/kg PCE in the 47.5-foot soil sample at B-3 and 0.042 mg/kg PCE in the 3-foot soil sample at B-9. Neither of these detections, however, point to a source at the Big O site affecting groundwater quality. The absence of solvent compounds in soil above 47.5 feet in B-1 suggests it migrated with groundwater from an upgradient source. And the lack of PCE in the 6.5-foot soil sample and in the water table sample at B-9 indicates that PCE in the 3-foot sample is not contributing to groundwater impacts.

Groundwater impacts also do not point to the site being a solvent source. PCE concentrations in groundwater did not increase across the site in the downgradient flow direction as would have occurred with an on-site solvent source. During the 2001 investigation, the highest PCE concentration of 4,700 µg/L was reported at 50 feet bgs, and in the upgradient groundwater flow direction to the Big O building. On the downgradient side of the Big O building, PCE reduced to 1,900 µg/L, indicating contaminants beneath the building were not a solvent source. During the 2006 investigation, no PCE trend in groundwater was established based on only one detection at boring B-13. Since no VOCs were detected in overlying soil samples at B-13 or in water samples in the adjacent boring B-13b and in downgradient boring B-14, this indicates that PCE contamination is not extensive or significant for solvents to migrate in groundwater from the property.

Overall, data from both investigations indicate an off-site solvent source affecting groundwater that migrated beneath the Big O site as evidenced by 1) the near lack of detected solvent contamination in on-site water table samples during the 2006 investigation 2), higher PCE concentrations detected in the upgradient flow direction to the shop area during the 2001 investigation, and 3) an order of magnitude higher in concentration of solvent compounds in deeper groundwater compared to shallow groundwater. Multiple site investigations at the LTLW site confirm the Water Board's conclusion that it is the probable solvent source affecting groundwater quality beneath the Big O site.

[5] Including the Rockwater well and Tahoe Valley Elementary School

In conclusion, investigation data do not point to the Big O site being a PCE source affecting or contributing to solvent pollution in the drinking water aquifer beyond its property. And while low levels of TPH as diesel and benzene were detected in groundwater beneath the site, they are not expected to migrate far or threaten active water supply wells. Thus, the Big O site meets the criteria for closure under the state's LTLC.

You may contact me at (530) 542-5436 or lauri.kemper@waterboards.ca.gov if you have any questions concerning this matter.

LAURI KEMPER
ASSISTANT EXECUTIVE OFFICER

Enclosure: 1989 Waterloo Center DNAPL cross section

CC: PCE Interested Party mailing list

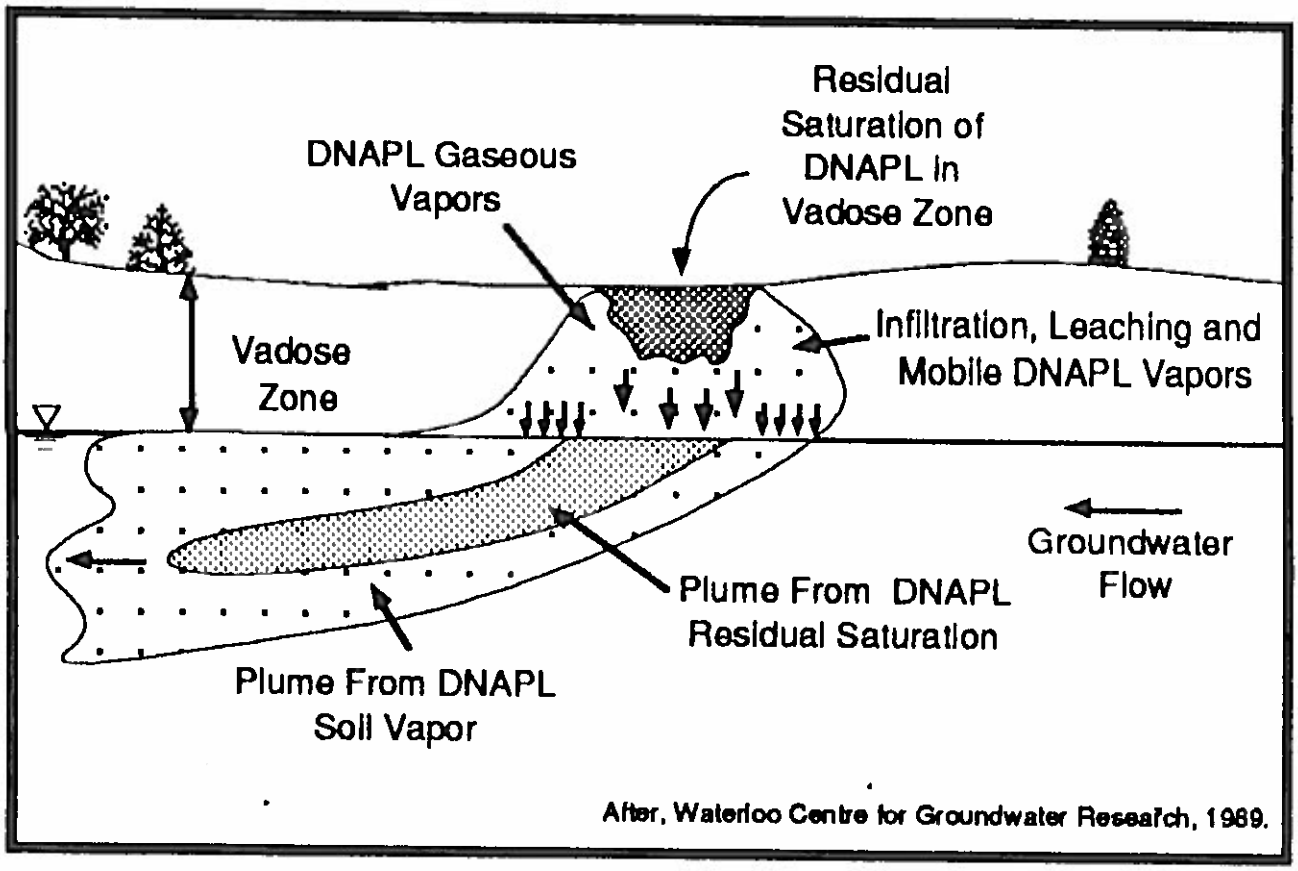

Figure 2. Migration of DNAPL vapors from the spill area and subsequent contamination of the soils and ground water.