From:	Brooks, Jeff@Waterboards
To:	Plaziak , Mike@Waterboards
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Subject:	For Advisory Team - Lake Tahoe Laundry Works Revised Proposed CAO, RTC package, etc.
Date:	Thursday, August 17, 2023 3:38:52 PM
Attachments:	LTLW RTC package combined.pdf
Importance:	High

Executive Officer Mike Plaziak:

I am sending this to you on behalf of Prosecution Team (Cleanup Team) Leader and Assistant Executive Officer Ben Letton.

The Lahontan Regional Water Quality Control Board's Prosecution Team is submitting a revised Cleanup and Abatement Order R6T-2022-PROPOSED (Order) and Staff Report for Lake Tahoe Laundry Works for the Advisory Team's consideration. Within the attachment to this email is an August 17, 2023, Memorandum which contains track changes versions of the revised proposed Order and Staff Report in addition to the Cleanup Team's Response to Comments document.

As always, the Prosecution Team is available to answer any questions you may have.

Thanks,

Jeff Brooks, PG
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Cleanup/Site Investigation and Enforcement Unit Chief
Lahontan Regional Water Quality Control Board
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96150
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MEMORANDUM

TO: Mike Plaziak
Executive Officer,
Lahontan Regional Water Quality Control Board

FROM: Ben Letton
Assistant Executive Officer
Lahontan Regional Water Quality Control Board

DATE: August 17, 2023

SUBJECT: **PROPOSED REVISIONS TO CLEANUP AND ABATEMENT ORDER NO. R6T-2022-PROPOSED, REQUIRING SEVEN SPRINGS LIMITED PARTNERSHIP, FOX CAPITAL MANAGEMENT CORPORATION, BOBBY PAGES, INC., AND CONNOLLY DEVELOPMENT, INC TO ASSESS, CLEAN UP AND ABATE WASTE DISCHARGED TO WATERS OF THE STATE PURSUANT TO CALIFORNIA WATER CODE SECTIONS 13267 AND 13304 AT 1024 LAKE TAHOE BOULEVARD AND REGIONAL PERCHLOROETHYLENE GROUNDWATER PLUME, SOUTH LAKE TAHOE, EL DORADO COUNTY**

The Lahontan Regional Water Quality Control Board's Cleanup Team (Cleanup Team) is submitting proposed revisions to Cleanup and Abatement Order R6T-2022-PROPOSED (Order) for the Lake Tahoe Laundry Works site for your consideration. The Cleanup Team reviewed and considered all comments received on the Order and, where appropriate, have proposed revisions to the June 16, 2022 version. Proposed revisions to the Order are shown in "track changes" and included as Attachment 1 *Markup of R6T-2022-(PROPOSED)* and Attachment 1b *Markup of Staff Report*. Responses to the comments received during the public comment period are included as Attachment 2 *Response to Comments*.

Minor revisions were made to the revised Order in response to the comments received. Revisions are proposed to (1) provide a reasonable and achievable Order schedule, (2) clarify Order language and intent and (3) change site names to be consistent with Geotracker naming convention.

The revised Order requires the Dischargers to further address the regional perchloroethylene (PCE) groundwater plume originating from the Site and includes provisions for replacement water. The revised Order requires the Dischargers to (1) Develop and Submit a Conceptual Site Model, (2) Develop, Submit, and Implement Site Investigation Work Plan(s), (3) Develop, Submit, and Implement a Monitoring Well Installation Work Plan, (4) Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan, (5) Prepare and Submit a Human Health and Ecological Risk Assessment (HHERA), (6) Conduct Remedial Action, (7) Prepare and Submit a Public Participation Plan**,** and (8) Conduct Monitoring. These actions are needed to

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

The Cleanup Team is available to answer any questions you may have on our recommendations or on the attached documents.

Attachments

Attachment 1: “Markup” of Cleanup and Abatement Order R6T-2022-Proposed for Lake Tahoe Laundry Works

Attachment 1b: “Markup” of Cleanup and Abatement Order R6T-2022-Proposed for Lake Tahoe Laundry Works, Attachment A Staff Report Supporting Cleanup and Abatement Order No R6T-2022-(PROPOSED)

Attachment 1c: “Markup” of Cleanup and Abatement Order R6T-2022-Proposed for Lake Tahoe Laundry Works, Attachment B: Lahontan Water Board’s Engineer’s Cost Estimate of Investigation and Reporting Scenarios 5-Year Cost Estimate

Attachment 2: Response to Comments Memorandum

ATTACHMENT 1: "MARKUP" OF CLEANUP AND ABATEMENT ORDER R6T-2022-(PROPOSED) FOR LAKE TAHOE LAUNDRY WORKS[1]

Proposed Revisions to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) Memorandum dated August 16, 2023, Requiring Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc., to Assess, Cleanup and Abate Waste Discharged to Waters of the State Pursuant to California Water Code Sections 13267 and 13304 at 1024 Lake Tahoe Boulevard and Regional Perchloroethylene Groundwater Plume, South Lake Tahoe, El Dorado County.

[1] Figures and Attachments were not included in the "Markup" document if changes were not proposed.

Proposed Revisons to Cleanup and Abatement Order No. R6T-2022-Proposed Memorandum, Attachment 1 - Markup of Cleanup and Abatement Order R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works

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

SEVEN SPRINGS LIMITED PARTNERSHIP
FOX CAPITAL MANAGEMENT CORPORATION
BOBBY PAGES, INC.
CONNOLLY DEVELOPMENT, INC

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

LAKE TAHOE LAUNDRY WORKS
1024 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
AND
REGIONAL PERCHLOROETHYLENE GROUNDWATER PLUME

SITE CLEANUP PROGRAM NO. T6S043
GEOTRACKER GLOBAL ID NO. SL0601754315

This Cleanup and Abatement Order No. R6T-2022-(PROPOSED) (Order) is issued to Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc., based on provisions of Water Code (WC) sections 13304 and 13267, which authorize the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) to issue this Cleanup and Abatement Order and require the submittal of technical and monitoring reports.

The Lahontan Water Board finds that:

OVERVIEW

1. **Discharger(s):** Seven Springs Limited Partnership (Seven Springs), Fox Capital Management Corporation (Fox), Bobby Pages, Inc. and Connolly Development, Inc. are identified as "Dischargers" due to their or their predecessors':

   - Current or prior ownership of the property located at 1024 Lake Tahoe Boulevard, South Lake Tahoe, California, during a time when a waste discharge occurred, and/or

   - Current or prior operations at the former Lake Tahoe Laundry Works resulted in the discharge of wastes, including the volatile organic compounds (VOCs) perchloroethylene (PCE) and PCE degradation compounds ~~including~~ trichloroethylene (TCE), cis-1,2 dichloroethylene (cis-1,2 DCE), trans-1,2

dichloroethylene (trans-1,2 DCE), 1,1 dichloroethylene (1,1 DCE), and vinyl chloride ~~(VC), and other waste constituents of concern~~ (collectively referred to as the contaminants of concern [COCs]), to the environment.

As detailed in this Order, the Dischargers have caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State, which creates, or threatens to create, a condition of pollution or nuisance. The presence of elevated levels of COCs in soil, soil vapor, and groundwater and the threat of vapor intrusion caused by these contaminants constitutes a public nuisance per se because the pollution occurred as a result of discharges of wastes in violation of the WC.

2. **Location:** The former Lake Tahoe Laundry Works (hereinafter referred to as "the 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 approximately 9,000 feet south of Lake Tahoe and approximately 5,500 feet south of the Tahoe Keys community (Tahoe Keys). The Site is located on the southwest corner of the intersection of Lake Tahoe Boulevard (Highway 50) and Emerald Bay Road (Highway 89) in an area locally referred to as the "South Y Area" (Figures 1 and 2). The portion of the Lake Tahoe Basin adjacent to, and downgradient from the Site relies on groundwater as its primary source of drinking water.[1]

3. **Site Description and Activities:** The Site is currently owned and managed by Seven Springs. A laundromat operated at the Site from the early 1970s to 2011. Another laundromat currently occupies the tenant space formerly occupied by Lake Tahoe Laundry Works.

4. **Chemical Usage:** The d~~D~~epositions from a former operator~~s~~[2], technical reports, regulatory correspondence, public comments, and other documents available in the case file indicate that PCE, a chlorinated solvent, was stored and used in a coin operated dry cleaning unit (DCU) operated at the Site from 1972 to 1979.

5. **Waste Discharges:** Site assessments conducted at the Site since 2003 indicate that the initial discharges of wastes to the soil and groundwater occurred as a result of dry cleaning operations between approximately 1972 and 1979. The Site assessments indicate that the soil, soil vapor, and groundwater (Figures 3 through 11) are impacted with COCs. The cleaning solvent delivery, handling, and disposal practices reported to have been utilized at the Site are consistent with the common release mechanisms identified in numerous dry cleaner studies and based upon the experience of State Water Board and Regional Water Quality Control Board staff. Spills/discharges associated with PCE delivery, handling, and disposal practices are the likely sources of waste discharge at the Site.

[1] South Tahoe Public Utility District, 2020. Tahoe South Subbasin (6-005.01) Annual Report 2020 Water Year, March 29, page 8
[2] AR11290-11678; Deposition of Mary Louise Baisley, former operator starting in 1976 (April 13, 2007)

6. **Investigations:** Site investigations started in the South Y Area after PCE was first reported in water supply wells in 1989. Since the initial discovery, multiple regional and site-specific investigations have been conducted by various parties to investigate and cleanup and abate its effects. The investigations conducted to date indicate the general geometry of one continuous~~a contiguous~~ regional PCE plume, approximately one mile long, which originates at the Site and extends without interruption through the South Y Area to at least the Tahoe Keys. The lateral and vertical extent of the regional PCE plume shown on Figures 8, 9, and 10 represent estimates based on a summary of previous site-specific investigations conducted between January 2017 and November 2020 and a 2019 and 2020 reconnaissance-level field investigation. Additional investigations are required to address remaining data gaps and further refine the Lahontan Water Board staff's understanding of the lateral and vertical extent of the regional PCE plume.

7. **Remediation:** Remediation efforts at the Site have focused on a limited on-Site (i.e., land within the Site's property boundaries, both above and below the ground surface, hereafter "on-Site") source area identified by the Dischargers' consultants (Figure 12) and have been insufficient to address the extent of the discharge(s) (Figures 8 through 11). COCs discharged at the Site prior to remedial action implementation continue to discharge and threaten to discharge into waters of the State. COCs in groundwater that have escaped the radius of influence of the on-Site remediation activities continue to migrate, unabated, into municipal and domestic water supplies (Figures 13 and 17).

8. **Discharges Have Impacted Regional Groundwater:** The Lahontan Water Board are conducting a $4.6 million investigation and the data results from the first two years of investigation conclusively establish that the discharges from the Site have contributed to thea ~~contiguous~~ regional PCE plume (Figures 8, 9, and 10), that originates at the Site, and extends, without interruption, north to the Tahoe Keys and to depths of approximately 240 feet below ground surface (bgs). The discharges have impaired Municipal and Domestic Supply (MUN) beneficial use (Figure 13) and COCs are present at concentrations that pose a threat to human health and the environment.

9. **Sources of Information:** The sources of information supporting this Order include, but are not limited to: reports and other documentation in Lahontan Water Board files, including meeting and telephone call documentation, and e-mail communication with Dischargers, their attorneys, and/or consultants, and Site visits. Relevant reports and data are also available at GeoTracker Global ID No. SL0601754315~~.~~[3] and at the various site-specific Site Cleanup and Underground Storage Tank program sites which overlie the footprint of the regional PCE plume. The Staff Report included as Attachment A provides more detail regarding the underlying bases for this Order.

REGULATORY AND LITIGATION HISTORY

10. The Lahontan Water Board issued a series of WC section 13267 investigative orders ~~to the Dischargers~~ beginning on June 5, 2003, which initiated soil and groundwater

[3] Link to Site Case File on GeoTracker

investigations related to the coin operated dry cleaning operation at the Site. The WC section 13267 investigative orders were dated April 12, 2004; May 17, 2004; July 26, 2004; and November 4, 2005, and required description and illustration of floor drain, piping, and connections within the building and definition of the lateral and vertical extent of the discharge. The WC section 13267 investigative orders resulted in the submittal of work plans and technical reporting for the four investigations conducted between 2003 and 2006. The results of the four investigations identified on-Site discharges of PCE and other COCs to soil and groundwater. Although required in these WC section 13267 investigative orders, the lateral and vertical extent of PCE and other wastes was never determined.

11. On April 18, 2006, the Lahontan Water Board issued a WC section 13267 order, directing ~~the Dischargers~~ Seven Springs, SSR Realty Advisors, Leroy and Mary Lou Baisley ("Baisleys") and Kjell and Kerstin Hakanssons ("Hakanssons") to submit a corrective action work plan. On July 14, 2006, the Lahontan Water Board Executive Officer agreed to postpone the requirement to submit a corrective action work plan per Seven Springs'~~the Dischargers'~~ request dated June 9, 2006.

12. On April 8, 2009, the Lahontan Water Board issued WC section 13267 Order No. R6T-2009-0013 directing ~~the Dischargers~~ Seven Springs, Fox, the Baisleys and the Hakanssons to submit a work plan to remove contaminants on the property and contain PCE migration in groundwater. ~~The Dischargers~~Seven Springs and Fox submitted the June 4, 2009 *Remedial Action Workplan for SZA Groundwater Investigation, SZA Groundwater Monitoring, Interim Remedial Action Vadose Zone Soil and Shallow Groundwater Cleanup* and follow-up addendum dated August 26, 2009 to comply. On September 1, 2009, the Lahontan Water Board accepted the tasks described in the above documents as interim remedial actions at the Site.

13. ~~On June 13, 2013, the Lahontan Water Board requested public comments for proposed cleanup actions.~~ The August 12, 2010 Draft Remedial Action Plan recommended the continued operation of the existing air sparge/soil vapor extraction (AS/SVE) system following pilot testing. On June 13, 2013, the Lahontan Water Board requested public comments for proposed cleanup actions. No public comments were received, and the Dischargers continued operating the AS/SVE system as proposed.

14. On August 2, 2013, the Lahontan Water Board issued WC section 13267 Order No. R6T-2013-0064, which conditionally accepted the continued operation of the AS/SVE remediation system to remediate contaminants in soil, soil vapor, and groundwater and directed Seven Springs and Fox~~the Dischargers~~ to submit quarterly remediation status reports. Investigative Order No. R6T-2013-0064 also indicated one year of verification monitoring would be required to ensure restoration of beneficial uses to the drinking water aquifer. The Dischargers have submitted quarterly remediation status reports in compliance with Order No. R6T-2013-0064. Remedial objectives have not been achieved so v~~V~~erification monitoring has not been conducted to confirm restoration of beneficial uses.

15. On June 15, 2015, the Lahontan Water Board, Fox, and Seven Springs entered into a Stipulated Agreement for Replacement Water Supply at 883 and 903 Eloise Avenue.

16. On September 15, 2015, the Lahontan Water Board issued a request for comments on Proposed Cleanup and Abatement Order R6T-2015-PROP and subsequently issued a Revised Request for Comments on September 29, 2015. Comments were received from the Dischargers and three water purveyors following two comment period deadline extensions.

17. On February 17, 2016, the Lahontan Water Board provided a *Satisfaction of Stipulated Agreement for Replacement Drinking Water* letter to Fox and Seven Springs confirming provision of interim water supply and connection of both properties (883 and 903 Eloise Avenue) to public water supply.

18. On July 18, 2016, the Lahontan Water Board issued *Proposed Revisions to Lake Tahoe Laundry Works Cleanup and Abatement Order No. R6T-2016-PROP*, which outlined specific revisions to the proposed cleanup and abatement order and provided responses to comments received. Comments regarding the proposed revisions were received from the Dischargers and water purveyors.

19. On May 12, 2017, the Lahontan Water Board issued Cleanup and Abatement Order No. R6T-2017-0022 (2017 CAO) to the Dischargers. Seven Springs and Fox petitioned the 2017 CAO to the State Water Resources Control Board (State Water Board). The State Water Board provided letters dated August 7, 2017, which acknowledged the receipt of petitions and granted Seven Springs' request for its petition to be held in abeyance. On December 21, 2017, Seven Springs requested to have the abeyance removed and the petition for review activated. The State Water Board did not act on either petition and the petitions for Fox and Seven Springs were dismissed on September 11, 2017 and March 22, 2018, respectively.

20. Seven Springs and Fox ~~subsequently~~ challenged the 2017 CAO in El Dorado Superior Court on October 10, 2017 and April 20, 2018, respectively.

21. On June 1, 2020, the El Dorado Superior Court vacated the 2017 CAO as to Fox and remanded to the Lahontan Water Board to consider, with respect to Fox, the criteria established for a former landowner/lessor in *United Artists Theatre Circuit~~ompany~~, Inc. v. Regional Water Quality Control Board, San Francisco Region* (2019) 42 Cal.App.5th 851. The Staff Report included as Attachment A provides the analysis supporting identification of Fox as a Discharger.

22. In its December 10, 2020, Judgment, the El Dorado Superior Court granted in part and denied in part the Seven Springs petition for writ of mandate. The Court upheld identification of Seven Springs as a Discharger under WC section 13304. The Court found the 2017 CAO to be "properly limited to investigate, cleanup and abate the contamination on the property and originating from the site."

23. The Final Ruling (referenced in the Judgment) also found the portion of the 2017 CAO related to monitoring and technical reports was defective because cost and burden were not considered appropriately. The Court held that the Lahontan Water Board must set forth findings to bridge the analytical gap between the raw evidence and ultimate decision that the burden, including costs, of the technical reports bear a reasonable relationship to the need for the reports. Subsequently, the Court of Appeals issued the opinion in Sweeney v. California Regional Water Quality Control Board (2021) 61 Cal.App.5th 1, which upheld a different cleanup and abatement order containing a similar requirement for monitoring and technical reports, pursuant to WC section 13267, that contained no costs, but merely a narrative explanation of the burden and benefits of the required reports.

24. Following issuance of the 2017 CAO to the Dischargers, Lahontan Water Board staff engaged in numerous meetings and draft document review and comment cycles with Fox, Seven Springs, and their consultants (EKI Water and Environment, Inc. [EKI] and PES Environmental, Inc. [PES]) to provide informal and formal CAO compliance guidance. The 2017 CAO required a work plan to define the lateral and vertical extent of discharges to groundwater originating from the Site utilizing a dynamic and iterative approach intended to streamline data collection.

25. In regular meetings with ~~the Dischargers~~Seven Springs (and, until the court ruled in June 2020, Fox) over the past four years, Lahontan Water Board staff regularly 1) requested updates on the Dischargers' progress in determining the lateral and vertical extent of PCE discharges originating from the Site; 2) reminded the Dischargers that determining the lateral and vertical extent of PCE was a critical component of the 2017 CAO; and 3) informed the Dischargers that identification of other potential PCE sources that may be contributing to the regional PCE plume does not mean investigation objectives have been met.

26. Despite these regular communications, the Dischargers elected to focus on finding additional potential dischargers. The Dischargers have failed to delineate the lateral and vertical extent of COCs originating from the Site.

27. The Dischargers have continued to delay rather than expedite investigation activities to address CAO requirements. This has resulted in unacceptable schedules for data collection and evaluation of potential remedial options. This Order is necessary to establish clear, enforceable deadlines to complete necessary investigation, cleanup and abatement of discharges, and requirements to supply replacement water.

28. Due to Dischargers' continued (20043 to present day) failure to delineate the lateral and vertical extent of COCs originating from the Site, and significant impacts to receptors (i.e., drinking water supply wells), requiring immediate corrective actions, Lahontan Water Board staff pursued a grant from the State Water Board's Site Cleanup Subaccount Program (SCAP) in 2018 to address the critical need to take action to characterize the regional PCE plume and identify potential PCE sources. On March 4, 2019, the Lahontan Water Board received a $4,600,000 SCAP grant to investigate the regional PCE plume in the South Y Area (SCAP Regional PCE Plume

Investigation). SCAP Regional PCE Plume Investigation activities were conducted during the 2019 and 2020 field seasons. Initial results provide 1) a general understanding of the lateral and vertical extent of the regional PCE plume, 2) an initial estimate of PCE concentrations and migration pathways within the regional PCE plume, 3) an initial evaluation of impaired, impacted and threatened receptors, 4) a confirmation that the regional PCE plume originates at the Site and extends without interruption from the Site to impaired receptors (i.e., the PCE contamination originating from the Site has migrated from the Site and has contributed to the regional PCE plume). This information supports the need for the actions required by this Order.

29. The obligations contained in this Order supersede and replace those contained in ~~prior orders~~the 2017 CAO. However, the prior orders remain in effect for enforcement purposes; the Lahontan Water Board and/or the State Water Board may take enforcement actions (including, but not limited to, issuing administrative civil liability complaints) against dischargers who have not complied with directives contained in previously issued orders.

SITE INVESTIGATION HISTORY AND REMAINING DATA GAPS

30. Site investigations started in the South Y Area in 1989 after PCE was first reported in water supply wells. Since the initial discovery, multiple regional and site-specific investigations have been conducted by various parties to investigate and cleanup and abate its effects. Investigations prior to the 2017 CAO are not summarized here but are available to interested parties in Lahontan Water Board files or electronically on the public GeoTracker website. Additional investigations, including the SCAP Regional PCE Plume Investigation, and quarterly groundwater monitoring and remediation system status reporting, were also conducted after the adoption of 2017 CAO requirements. The following section provides a brief summary of these investigations and the 2015 indoor air investigations, relative to conclusions and data gaps. The Staff Report included as Attachment A provides additional information regarding the Site specific and regional PCE plume investigation history.

31. On-Site and off-Site (defined as any land both above and below the ground surface that is outside of the Site's property lines/boundaries, hereafter off-Site) preferential pathway investigation activities were conducted to evaluate the magnitude and extent of contaminant transport along preferential pathways (e.g., discharges that follow disturbed soils or conveyances such as a stormwater conveyance system or other subsurface utility corridors). The preferential pathway investigations indicate:

    a) On-Site waste discharge to the stormwater conveyance system based on the distribution and magnitude of PCE mass in soil vapor and groundwater near stormwater conveyance inlets (Figures 6 and 11) and the detections of PCE in soil within the stormwater conveyance system backfill (Figure 4).

    b) Off-Site contaminant transport via the stormwater conveyance system based on the stormwater conveyance system's configuration and the distribution and

magnitude of PCE mass in soil vapor and groundwater near conveyance inlets and the discharge point into Tucker Basin (Figure 6 and 11).

c) The evaluation of contaminant transport along the stormwater conveyance system remains incomplete. Additional investigation is necessary to evaluate the magnitude and extent of contamination within and downstream of Tucker Basin.

d) On-Site discharges to the sanitary sewer are supported by the detections of PCE in soil vapor within utility backfill along the building's western perimeter (Figure 6) and in soil and groundwater beneath the building (Figures 3 and 14, respectively).

e) The evaluation of potential threat to human health posed by remaining contamination located beneath the Site building, including potential releases from the sanitary sewer, remains incomplete. The on-Site utility video assessment activities did not include inspection of the sanitary sewer pipelines beneath the former dry cleaner tenant space at the Site to identify potential defects. Additional sampling has not been identified or implemented below the building or adjacent to the off-Site sanitary sewer alignment backfill.

32. Groundwater data collected from the existing groundwater monitoring well network and from the additional investigations conducted following CAO issuance, including the State-funded SCAP Regional PCE Plume Investigation, indicates:

a) PCE concentrations in and downgradient of the pre-defined source area of the Site have significantly declined since operation of the AS/SVE remediation system commenced, but recent detections of PCE in on-Site and off-Site groundwater still exceed the United States Environmental Protection Agency (EPA) and California maximum contaminant level (MCL) and California EPA Office of Environmental Health Hazard Assessment Public Health Goals (PHG), which indicates residual mass remains a threat to human health (Figures 7 through 10 and 15).

b) PCE concentrations in on-Site and off-Site groundwater also exceed the San Francisco Bay Regional Water Quality Board Environmental Screening Level (ESL) for vapor intrusion which indicates a potential human health threat from the vapor intrusion to indoor air pathway (Figure 11).

c) Prior to and following on-Site remediation, COCs were detected in on-Site groundwater at concentrations that exceed MCLs and PHGs and at locations which indicate COCs from the Site migrated and continue to migrate, unabated, impairing the MUN beneficial use in the Lake Tahoe Hydrologic Unit (Figure 13).

d) PCE is found in groundwater in every downgradient step-out groundwater sample location advanced from the Site's property boundary to the regional PCE plume (Figures 8 through 10 and 16).

e) The SCAP Regional PCE Plume Investigation provided an initial estimate of the regional PCE plume's geometry and established that the Site is the most

upgradient source of one continuous regional ~~a contiguous~~ PCE plume that originates at the Site and extends, without interruption, north to the Tahoe Keys and to depths of approximately 200 feet bgs (Figures 8, 9, and 10). Although an estimate of the regional PCE plume's geometry was provided by these activities, additional investigation is still needed to delineate the extent of contamination in areas and depths where COC concentrations in groundwater remain above background levels and pose a~~evaluate the impact and~~ threat to human health and the environment.

f) Analytical results from multiple investigative studies and water system monitoring document that the regional PCE plume has impaired multiple municipal, small community, and private water supply wells (collectively referred to as water supply wells), and continues to impact and threaten the remaining active water supply wells in and adjacent to the regional PCE plume (Figure 13). Additional evaluation of the potential threat to human health, including potential mitigation measures (including replacement water and potential vapor intrusion), is needed.

g) The Dischargers' current and historical groundwater monitoring network is not sufficient to evaluate the lateral and vertical extent of COCs originating from the Site and/or adequate to evaluate the known and potential threats to water supply wells (Figure 2).

33. The Dischargers conducted a "self-directed" off-Site groundwater investigation in June and July 2017 to identify other potential PCE sources contributing to the regional PCE plume in the South Y Area. The investigation consisted of the collection of multi-depth groundwater samples at 19 locations within the South Y Area. PCE concentrations in groundwater were detected at 17 of the 19 locations; all locations were downgradient from the Site. No sources of PCE were identified upgradient from the Site (Figure 16).

34. Lahontan Water Board conducted an extensive investigation of other potential contributing discharges. On April 3, 2019, 223 WC section 13267 investigative orders were sent to potential responsible parties for 122 properties identified through records searches for businesses that may have used, stored, handled, or disposed of chlorinated solvents, within the estimated regional PCE plume area. The orders required a General Chemical Storage and Use Questionnaire, or a Dry Cleaner Specific Questionnaire be completed (questionnaires). Following the review of questionnaires received and historical Lahontan Water Board Site Cleanup Program case files, the Lahontan Water Board issued site-specific WC section 13267 investigative orders requiring suspected dischargers to investigate the extent of PCE contamination in soil, soil vapor, and groundwater. A source area inventory was developed to support SCAP Regional PCE Plume Investigation tasks and is currently being evaluated relative to the available groundwater data to identify other potential sources. These investigations and evaluation of potential additional PCE sources contributing to the regional PCE plume are ongoing and are not the subject of this CAO. Pursuant to State Water Board Resolution 92-49, the Lahontan Water Board will continue to make a reasonable effort to identify additional dischargers contributing

to the regional PCE plume. It is not necessary to identify all dischargers prior to proceeding with requirements for investigation and clean up and abatement.

35. The current Lake Tahoe Laundry Works' conceptual Site model (CSM) is both incomplete and inaccurate, and must be updated. The current CSM does not acknowledge ~~comply with the requirements of Site investigations since 2003 and the 2017 CAO requirement to determine~~ the full lateral and vertical extent of discharges originating from the Site. In addition, the current CSM does not acknowledge (1) the extent of soil contamination above leaching to groundwater ESLs and soil contamination that has been in contact with seasonally shallow groundwater for decades, (2) the extent of potential contaminant migration that occurred prior to remedial implementation, (3) the extent, magnitude, geometry, and trends of the dissolved phase groundwater contamination, (4) on-Site discharges of PCE have contributed to the regional PCE plume , and (5) the current impairments, impacts and threats currently posed to receptors by the contamination originating from the Site.

36. Since April 2010, soil vapor samples have been collected from the 10 on-Site shallow soil vapor probes, on an approximately quarterly basis, to evaluate the effectiveness of the on-Site AS/SVE remediation system operation. Despite the AS/SVE remediation system operation, recent on-Site PCE concentrations in soil vapor still exceed the vapor intrusion ESL (Figure 5). Additional investigations are required to delineate extent of contamination in soil vapor originating from the Site and evaluate the potential risk to human health due to vapor intrusion (i.e. to indoor air) from the remaining on-Site and off-Site source areas (e.g. Tucker Basin) and off-Site groundwater (i.e. portions of the regional PCE plume outside of the Site's property lines/boundaries).

37. In July and December 2015, indoor air assessments of select occupied tenant spaces within the South Y Shopping Center were conducted because on-Site shallow soil vapor concentrations of COCs exceeded the vapor intrusion ESL. Although the indoor air PCE concentrations detected did not exceed the ESL for indoor air, PCE was detected in each of the four tenant spaces sampled. The sampling demonstrated actual threats via the vapor intrusion pathway and the need to re-evaluate risk and potential mitigation measures for temporal variation and following cessation of operation of the existing AS/SVE system.

38. Investigations conducted to date ~~by the Discharger's consultants and others~~ have not evaluated potential threats or impacts to surface water beneficial uses, including minor surface waters and minor wetlands, and ecological receptors. COC concentrations in soil and groundwater have been reported above ESLs for protection of terrestrial and aquatic habitats.

REMEDIAL ACTION SUMMARY

39. In April 2010, an AS/SVE system was installed to remediate chlorinated hydrocarbons in soil and shallow groundwater within the ~~Dischargers' predefined~~ "source zone area" at the Site (Figure 12). An estimated mass of approximately 9862~~2~~ pounds of VOCs

have been removed by the AS/SVE system to date. Due to declining AS/SVE system performance and contamination identified outside of its radius of influence, the Dischargers must continue to evaluate other remedial options to enhance removal of the residual contaminant mass and to address ongoing off-Site COC migration in groundwater.

40. In September and October 2017, batch pumping events were performed to evaluate additional remedial options to remove on-Site PCE in groundwater. No additional batch pumping activities were performed because Lahontan Water Board staff expressed concerns that batch pumping activities could affect the results of an upcoming off-Site groundwater investigation (i.e., continued batch pumping could decrease PCE concentrations in off-Site groundwater and investigation results would not be representative). Post batch pumping groundwater monitoring revealed a significant reduction in PCE concentrations detected from shallow and middle zone groundwater and demonstrated that this may be an effective remediation technology. Monitoring conducted during batch pumping provides additional lines of evidence to support hydraulic connection between the shallow and middle groundwater-bearing zones and the lack of an effective vertical barrier preventing contaminant transport between these zones.

41. In November 2019, an in-situ chemical oxidation pilot test (pilot test) was implemented to evaluate the feasibility of removing PCE remaining in the capillary fringe and shallow groundwater. Post pilot test groundwater monitoring indicate that in-situ chemical oxidation has significantly reduced VOC concentrations and is a potential remediation technology that can reduce PCE mass in shallow and middle zone groundwater.

42. The post pilot test groundwater monitoring also confirmed hydraulic connectivity between “shallow” and “middle” zones of the underlying aquifers. Visual and analytical monitoring results collected during the potassium permanganate injection pilot test refute a fundamental basis of the Dischargers’ CSM, that a silt layer is purportedly preventing downward vertical migration of PCE and other COCs in groundwater.

43. Remedial actions were not implemented in an appropriate timeframe to effectively mitigate the lateral and vertical migration of PCE and other COCs migrating from the Site. Remedial actions were implemented approximately thirty years after the estimated discharge(s) of waste to the environment and were only designed to remediate on-Site soil above the water table and nearby underlying shallow groundwater. Prior to and following on-Site remediation, COCs have been detected in soil and groundwater at concentrations that exceed leaching to groundwater ESLs and MCLs, respectively, indicating ongoing threats to human health and the environment. Some of these areas are outside of the influence of current remediation activities, meaning that COCs continue to discharge and migrate, unabated, into groundwater, impairing the MUN beneficial use (Figure 13).

44. The installed AS/SVE system is not capable of remediating areas outside the pre-defined source zone area (Figure 12), including extensive areas of off-Site impacted

groundwater which extend laterally beyond the boundaries of the Site and vertically at depths below the influence of the air sparge wells.

45. Additional remedial actions are necessary to clean up soil, soil vapor, and groundwater, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater.

46. Water supply wells are currently impaired, impacted, or threatened by the regional PCE plume (Figures 13 and 17). None of the remediation conducted to date directly addresses these impacts. Treatment and/or replacement water is necessary for impaired water supply wells.

47. The bases of Dischargers' current CSM must be updated to acknowledge the permeability of the silt layer between the shallow and middle water-bearing zones and further acknowledge the waste discharge and remedial action implementation timeframe and that the AS/SVE system has not eliminated off-Site contaminant migration and does not remediate the full extent of impacted soil, soil vapor and groundwater currently identified.

AUTHORITY – LEGAL REQUIREMENTS

48. WC section 13304, subdivision (a) provides that:

> *"(a) A person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board or a regional board may require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant."*

49. WC section 13304, subdivision (c)(1) provides that:

> *"the person or persons who discharged the waste, discharges the waste, or threatened to cause or permit the discharge of the waste within the meaning of subdivision (a), are liable to that governmental agency to the extent of the reasonable costs actually incurred in cleaning up the waste, abating the effects of*

the waste, supervising cleanup or abatement activities, or taking other remedial actions.

50. WC section 13304, subdivision (f) requires that replacement water "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.

51. "Impaired wells" for the purposes of the initial interim emergency replacement water evaluation are considered to be water supply wells, as described in Finding 32f, in the "affected area" (see next finding) containing PCE or other COCs in concentrations that are above their respective MCL.

52. The "affected area" for the purposes of the initial interim emergency replacement water evaluation (Order 7bii) is considered to be the area impaired by contamination originating from the Site. The area to be evaluated for interim emergency replacement water is approximately bounded by Lake Tahoe Boulevard to the south, Venice Drive to the north, Glorene Avenue to the southwest, West Way to the west, and the South Upper Truckee River to the east. These boundaries shall be revised based on future data collection and evaluation.

~~52.~~53. "Imminent" for the purposes of the initial human health and ecological risk evaluation (Order 5) and initial interim remedial action plan (Order 6d) is considered to mean a condition that creates a substantial probability of harm, when the probability and potential extent of harm make it reasonably necessary to take immediate action to prevent, reduce, or mitigate the actual or potential damages to human health or the environment.

~~53.~~54. The Lahontan Water Board acknowledges that providing bottled water to residences or businesses currently served by affected wells would, on its face, satisfy the requirement for uninterrupted replacement water service, specifically since the beneficial use affected is water for consumptive purpose and bottled water could meet this need. However, environmental justice requires that bottled water not be the permanent solution. Long-term replacement water likely consists of replacing the source water, thereby allowing community members total and unrestricted use of all household taps for consumptive use. Relying on long-term use of bottled water for all consumptive uses for residences that previously had the ability to consume water from any household tap interferes with the free use of their property and deprives those persons of prior quality of life expectations. Where the Discharger's actions require replacement water service, it is appropriate to require that not only the quality, but also the long-term replacement water service, be comparable to that which it was prior to the adverse effect to the water supply, even if bottled water must be the source of replacement water service on an interim basis. The fact that replacement water service will likely be in place for many years increases the necessity that there be a requirement in this Order for long-term replacement water service that enables the residents of the community to use their household taps.

~~54.~~55. WC section 13267, subdivision (b)(1) provides that:

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

~~55.~~56. This Order requires investigation and submittal of work plans and reports (collectively referred to as reports) as well as ongoing monitoring ~~and other tasks~~ required pursuant to WC section 13267. The burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. Specifically, the reports are needed in order to adequately delineate the extent and amount of waste discharged, assess the threat of continuing discharge and to facilitate compliance with implementing cleanup and abatement activities required by this Order, with the ultimate goal of restoring water quality and protecting beneficial uses, including the drinking water supplies of the entire community of South Lake Tahoe. The record contains extensive evidence of the benefits to be obtained, including protecting an entire community from PCE, which is a classified by the EPA as a likely carcinogen to humans. Public health threats are not only in the form of impacts to drinking water supplies (which may be treated at the wellhead), but also include the potential for PCE vapors to volatilize up from the water table, potentially impacting the indoor air of residences and businesses overlying the plume. PCE vapors are not typically noticed (unlike a gas leak, for example), meaning that a person may inhale vapors for years without having any indication. The benefits to be obtained from the requirements for investigation include ensuring the protection of human health of local residents whose businesses and homes overlie the plume.

~~56.~~57. Additional benefits to be obtained include protection of the community's drinking water, both immediately and from threatened impacts that could occur in the future. The Staff Report (Section VII) describes the significant impacts already occurring on the South Lake Tahoe community water supply wells. Multiple water supply wells are currently impaired, impacted, or threatened by the regional PCE plume. For some water supply wells additional evaluation of the potential threat to human health is necessary, and required by the Order, while other certain water supply wells will require ongoing monitoring of known impacts to ensure people in the community are not adversely impacted.

~~57.~~58. Water supply wells in the South Y Area have been taken off-line (i.e., disconnected from the water distribution system), destroyed, or require wellhead treatment to remove PCE from groundwater prior to distribution while ~~many~~ others remain threatened by the regional PCE plume. Figures 13 and 17 display a recent snapshot of the approximate lateral extent of the regional PCE plume and locations of the

impaired, impacted, and threatened supply wells in the South Y Area as of September 2020.

~~58.~~59. Municipal supply wells spanning three water districts have been impaired (PCE concentration detected above the MCL), impacted (PCE concentration detected below the MCL), or threatened (PCE has not been detected above the reporting limit but may be come impacted or impaired in the future due to regional PCE plume migration) by the regional PCE plume. The three affected water districts include the South Tahoe Public Utility District, Lukins Brothers Water Company and Tahoe Keys Water Company. These three water districts serve approximately 40,000 residents and hundreds of commercial properties. These three water districts provide 97 percent of the South Lake Tahoe's community. With the increased threat and severity of catastrophic wildfires in California, the ability of the community to rely upon these water resources is even more critical.

~~59.~~60. Based upon actual costs incurred during the SCAP Regional PCE Plume Investigation, cost estimates provided in the Proposition 1 granted-funded work for regional PCE plume related work, and various State Water Board cost estimation guidance documents and spreadsheets, the estimated costs of complying with the investigation and reporting requirements are in the range of approximately $6,600,000 to $11,100,000. Many of these costs are controllable and may be reduced significantly with aggressive and prompt remediation efforts. As an example, many extensive solvent plume cases have been resolved with high resolution investigation and remediation, reducing high concentration solvent plumes down to MCLs within a span of three to five years. That type of remedial effort would significantly reduce estimated long-term monitoring costs. Lahontan Water Board's cost estimate (see Attachment B) primarily focused on the professional services and related contractor costs for the preparation and submittal of technical and monitoring reports required for compliance with this Order under WC section 13267. This estimate is subject to uncertainty based on unanticipated changes in the scope of work, unanticipated changes in field conditions, unanticipated work required by other regulatory agencies, unanticipated changes due to adverse weather, and geographical variations in professional services costs and contractor costs. Tasks and details in the cost estimate (Attachment B) are not being provided as a directive and are not part of the requirements of this Order (see "Required Actions" section). Rather, Attachment B is provided merely to help the Dischargers understand Lahontan Water Board's consideration of the burden and costs associated with the investigation and reporting requirements. The cost of these reports is reasonable in relation to the need for the reports and the benefits to be obtained. The technical reports required by this Order are necessary to assure compliance with WC section 13304 and State Water Board Resolution No. 92-49, including to adequately investigate and cleanup the Site to protect the beneficial uses of waters of the state, to protect against nuisance, and to protect human health and the environment.

~~60.~~61. The State Water Board has adopted Resolution No. 92-49, the Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under WC section 13304 (Resolution 92-49). This Policy sets forth the policies and procedures

to be used during an investigation or cleanup of a polluted site and requires that cleanup levels be consistent with State Water Board Resolution 68-16, the Statement of Policy With Respect to Maintaining High Quality of Waters in California (Resolution 68-16). Resolution 92-49 and the Water Quality Control Plan for the Lahontan Region (Basin Plan) establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background, or if that is not feasible, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with California Code of Regulations, title 23, section 2550.4. The Lahontan Water Board's Basin Plan, which was initially adopted on March 31, 1995, and amended from time-to-time, identifies beneficial uses and establishes water quality objectives to protect beneficial uses. The Site lies within the Tahoe South Subbasin of the Tahoe Valley Groundwater Basin (TVS Basin) of the Lake Tahoe Hydrologic Unit. As set forth in the Basin Plan, the designated beneficial uses for groundwater in the Lake Tahoe Hydrologic Unit include MUN, agricultural supply (AGR), and industrial service supply (IND). Water quality objectives to protect the beneficial use of MUN that apply to the groundwater at the Site include the "Chemical Constituents and Radioactivity", which incorporates by reference state maximum contaminant levels set forth in Title 22 of the California Code of Regulations. The MCLs for PCE and TCE is 5 µg/L, and cis-1,2 DCE is 6 µg/L. As discussed in the Findings of this Order, the concentrations of PCE, TCE, and cis-1,2 DCE in groundwater at and downgradient of the Site exceed the water quality objectives applicable to the wastes.

~~61.~~62. Regionwide Prohibitions in Section 4.1 of the Basin Plan include:

a) The discharge of waste that causes violation of any narrative or numeric water quality objective contained in this Plan is prohibited.

b) Where any numeric or narrative water quality objective contained in this Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.

c) The discharge of waste that could affect the quality of waters of the state that is not authorized by the State or Regional Water Board is prohibited.

~~62.~~63. Unit/Area Prohibitions for the Lake Tahoe Hydrologic Unit in Section 5.2 of the Basin Plan include a prohibition of the discharge attributable to human activities of any waste or deleterious material to surface waters of the Lake Tahoe Hydrologic Unit.

~~63.~~64. The designated beneficial uses of minor surface waters and minor wetlands for the South Tahoe Hydrologic Unit are MUN, AGR, GWR, REC1, REC2, COMM, COLD, WILD, and SPWN. Water quality objectives to protect these beneficial uses include narrative and numerical water quality objectives in the Basin Plan. As set forth in Finding 32, the discharges of waste at the Site exceed the water quality objectives applicable to the wastes.

~~64.~~65. The exceedance of applicable narrative or numeric water quality objectives in the Basin Plan constitutes contamination, pollution and nuisance as defined in WC section 13050.

~~65.~~66. The threat of vapor intrusion into buildings at and near the Site has caused or threatens to cause nuisance as defined in WC section 13050, subdivision (m). In particular, the threat of vapor intrusion is potentially injurious to health, indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; affects at the same time an entire community; occurs during or as a result of the treatment or disposal of waste.

~~66.~~67. The Lahontan Water Board may require the Dischargers to submit a Public Participation Plan or engage in other activities to disseminate information and gather community input regarding the Site, as authorized or required by WC sections 13307.1, 13307.5 and 13307.6.

~~67.~~68. This Order requires investigation and cleanup in compliance with the WC, the applicable Basin Plan, State Water Board Resolutions 92-49 and 68-16, and other applicable plans, policies, and regulations. All Dischargers are responsible for complying with each and every requirement, unless otherwise specifically noted.

DISCHARGER LIABILITY

~~68.~~69. The COCs and other potential waste constituents discharged at the Site constitute "waste," as defined in WC section 13050, subdivision (d). The ongoing migration of these wastes is a "discharge." Dischargers have thus permitted, caused or permitted, and/or threaten to cause or permit waste to be discharged where it has and probably will be discharged into the waters of the state and have created and/or threaten to create a condition of pollution and nuisance.

~~69.~~70. Dischargers are liable for public nuisance because they created and/or contributed to the creation of groundwater contamination that has impaired the MUN beneficial use. Despite knowing of significant contamination Dischargers have failed to delineate the lateral and vertical extent of the regional PCE plume, as required by Lahontan Water Board orders over a period of several years, or remediate known contamination that continues to migrate, unabated.

Seven Springs Limited Partnership

~~70.~~71. The El Dorado Superior Court upheld naming Seven Springs as a Discharger. Seven Springs is the current owner of the property, indisputably knows of the ongoing discharge of waste and has the legal ability to control it.

Connolly Development, Inc.

~~71.~~72. The coin operated DCU used PCE as a cleaning solvent and was present at the Site from 1972 to 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. owned the Site starting around 1972 and up until it sold the Site in September 1974 to Century Properties Equity Fund 73. Century Properties Equity Fund 73 then leased the Site in September 1974, including a lease back to Connolly Development Inc. for at least one year, and later sold it on December 19, 1985.

~~72.~~73. Connolly Development Inc. is named as Discharger because of its~~their~~ ownership and lease of the property, and knowledge of the coin operated DCU at the Site during their ownership and lease. As owner of the property, Connolly Development had knowledge of and control over the activities occurring at the Site that caused the discharge, which include the re-filling of the drum that contained the solvents, and the legal ability to prevent the discharge. As the owner of the Site, Connolly Development had control over leasing out retail space, managing and maintaining common areas such as sidewalks, parking areas and delivery areas. Connolly Development was identified as a Discharger in the 2017 CAO and did not contest liability.

Century Properties Equity Fund 73

~~73.~~74. Century Properties Equity Fund 73 (Century 73), a Limited Partnership, was also the owner of the Site at the time the self-service, coin-operated, dry cleaning machine existed in the laundromat at the Site. Like Connolly Development, as the owner of the Site, Century 73 had knowledge of and control over the activities occurring at the Site that caused the discharge and had the legal ability to prevent the discharge. Even if the discharge occurred during the time that Connolly Development owned~~r~~ the property, under established Water Board precedent, Century 73 would be considered to have been in possession during the time of the discharge because “the discharge continues as long as pollutants are being emitted at the site.” (SWRCB WQ Order 89-8, p. 14.)

~~74.~~75. Century 73 was identified ~~as a Discharger~~ in the 2017 CAO and did not contest liability.

Fox Capital Management Corporation

~~75.~~76. Fox & Carskadon Financial Corporation~~Fox Capital Management Corporation~~ was the general partner of Century 73 and subsequently changed its name to Fox Capital Management Corporation in or around 1986. As Century 73’s general partner, it is liable for all obligations of the limited partnership, including the environmental contamination from the operation of the partnership. As a general partner, Fox Capital Management Corporation, formerly Fox & Carskadon Financial Corporation, also had knowledge of and control over the activities occurring at the Site that caused the discharge. The evidence establishes that Fox knew or should have known of the general activity that created a reasonable possibility of discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance.

Bobby Page's, Inc.

~~76.~~77. This Order also names Bobby Page's, Inc., who operated the DCU at the Site and subleased the Site to other dry cleaner operators during the relevant period (1972 through 1979/1980) the DCU was present at the Site. Bobby Pages, Inc., was identified as a Discharger in the prior Cleanup and Abatement Order and did not contest liability.

~~77.~~78. The Lahontan Water Board will consider whether additional dischargers caused or permitted the discharge of waste at the Site and whether additional dischargers should be added to this Order. The Lahontan Water Board may amend this Order or issue a separate order or orders in the future as more information becomes available. The Lahontan Water Board is issuing this Order to avoid further delay of Site remediation and provision of replacement water.

OTHER CONSIDERATIONS

~~78.~~79. Issuance of this Order is being taken for the protection of the environment in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code § 21000 et seq.). This Order requires the Dischargers to submit plans for approval prior to implementation of cleanup activities at the Site. Submittal of plans is exempt from CEQA as it will not cause a direct or indirect physical change in the environment and/or is an activity that cannot possibly have a significant effect on the environment. (Cal. Code Regs., tit. 14, § 15061, subd. (b)(3).) CEQA review of potential future plans would be premature and speculative at this time, as there is not enough information concerning the Dischargers' proposed remedial activities and possible associated environmental impacts. If the Lahontan Water Board determines that implementation of any future proposed plan required by this Order will have a significant effect on the environment, the Lahontan Water Board will conduct the necessary and appropriate environmental review prior to Executive Officer's approval of the applicable plan. Many activities, including groundwater and soil vapor sampling, well installation and some forms of remediation are ministerial projects exempt from CEQA. (Cal. Code Regs., tit. 14, § 15268.) The Lahontan Water Board has already reviewed past and existing efforts to conduct AS/SVE, groundwater batch pumping and in situ chemical oxidation prior to implementation and determined these activities do not have a significant effect on the environment. (Cal. Code Regs., tit. 14, § 15061, subd. (b)(3).)

~~79.~~80. Pursuant to WC section 13304, the Lahontan Water Board may seek reimbursement for all reasonable costs to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.

~~80.~~81. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes (WC section106.3.). This Order promotes that policy

by requiring the Discharger(s) to clean up the groundwater to ensure protection of drinking water and provide replacement water.

~~81.~~82. The Lahontan Water Board has adopted State Water Board Resolution No. 2017-0012 Comprehensive Response to Climate Change (Comprehensive Response to Climate Change). This Order promotes the Comprehensive Response to Climate Change and implementation of the Sustainable Groundwater Management Act to help protect groundwater resources against drought and climate change to ensure the community of South Lake Tahoe has access to safe, accessible, and affordable drinking water.

~~82.~~83. Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Board to review the action in accordance with WC section 13320 and title 23, California Code of Regulations, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Filing a petition does not stay operative deadlines and requirements. Copies of the law and regulations applicable to filing petitions will be provided upon request or may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality

REQUIRED ACTIONS

THEREFORE, IT IS HEREBY ORDERED, pursuant to WC sections 13304 and 13267 that the Dischargers shall investigate, cleanup the waste and abate the effects of waste forthwith discharging at and from **1024 Lake Tahoe Boulevard, South Lake Tahoe, California, including the extent of the regional PCE plume**. "Forthwith" means as soon as reasonably possible, but in any event no later than the compliance dates in Attachment C, Time Schedule. More specifically, the Dischargers shall:

1) **Develop and Submit a CSM**

The CSM shall be based upon the data collected by the Dischargers as well as other data sources (e.g., data collected during SCAP Regional PCE Plume Investigation as well as data collected by others within and adjacent to the regional PCE plume). The CSM shall be prepared in accordance with the most recent available USEPA and DTSC guidance[4].

Currently available information indicates that assessment, characterization and delineation of waste constituents is incomplete, and the preparation and submittal of work plans to complete assessment and characterization of COCs in soil, soil vapor, and groundwater and to fully delineate the vertical and lateral extent of waste in soil, soil vapor, and groundwater (on-Site and off-Site) is still needed. The bases for the

[4] DTSC's June 2012 *Guidelines for Planning and Implementing Groundwater Characterization of Contaminated Sites*

additional work shall be described in the CSM and proposed in the work plans as set forth in Orders 2 through 5 below. The CSM and all future CSM updates shall:

a. Provide a written presentation with graphic illustrations of nature and extent of COCs in soil, soil vapor, and groundwater originating from the Site contributing to the regional PCE plume and potential and known impacts of contamination to human and ecological receptors.

b. Include a description of discharge scenario(s), regional PCE plume geology and hydrogeology, on-Site and off-Site preferential pathways (e.g., stormwater conveyance system, sanitary sewer, other subsurface utilities), potential vertical conduits (e.g. water supply wells and monitoring wells), distribution of wastes in soil, soil vapor, and groundwater, exposure pathways associated with the regional PCE plume, sensitive receptors (i.e., schools, day cares, nursing homes, etc.) and water supply wells.

c. Acknowledge 1) off-Site migration of PCE contamination has occurred in the past, and is still occurring, 2) the regional PCE plume originates at the Site and continues without interruption to the Tahoe Keys (and potentially beyond), 3) the regional PCE plume has impaired the MUN beneficial use of groundwater, 4) PCE contaminant transport from the Site has occurred since the initial release that occurred over 40 years ago and is still occurring despite the operation of the AS/SVE system since 2010, 5) the AS/SVE system does not remediate the full extent of soil, soil vapor and groundwater contamination currently identified on-Site which has resulted in the discharge of PCE off-Site, 6) an effective lithologic barrier to inhibit downward migration of PCE contamination in groundwater does not exist at the Site and there is a hydraulic connection between shallow and middle water bearing zones, and 7) the Site meets all of the Dischargers' PCE source criteria defined and is a PCE source contributing to the regional PCE plume.

d. Identify data gaps to be evaluated~~addressed~~ in the Site Investigation Work Plan(s).

e. The CSM and routine CSM updates (as new data become~~s~~ available) acceptable to the Executive Officer shall be submitted in conformance with the requirements detailed in Attachment C, Time Schedule.

~~2) **Prepare and Submit a Sampling and Analysis Plan and Quality Assurance Project Plan**~~

~~a. Prepare and submit a comprehensive Sampling and Analysis Plan (SAP), documenting the procedural and analytical requirements for sampling soil, soil vapor, surface water (if applicable), subsurface utility backfill (e.g., stormwater and sanitary sewer conveyance system backfill) and groundwater. The SAP will be utilized for all phases of investigation, monitoring, and remediation system performance monitoring.~~

~~b. Prepare and submit a comprehensive Quality Assurance Project Plan (QAPP) describing the quality assurance procedures, quality control activities, and technical activities that will be implemented to ensure data quality objectives are met.~~

~~c. Update the SAP and QAPP as necessary to accommodate applicable regulatory changes, sampling method changes, analytical test method changes, and scope of work changes.~~

~~d. A SAP and QAPP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements detailed in Attachment C, Time Schedule.~~

~~3)~~2) **Develop, Submit, and Implement Site Investigation Work Plan(s)**

The Site Investigation Work Plan(s) (SIWP) shall propose investigation activities to update on-Site and off-Site information with the data required to define the full lateral and vertical extent of the discharge and evaluate potential threats to human health and ecological receptors. The data collected will be used to support development of the Monitoring Well Installation Work Plan (Order 4), Vapor Intrusion Work Plan (Order 5), Human Health and Ecological Risk Assessment (Order 6), and recommendations for appropriate interim (Order 7d) and final (Order 7e) remedial actions to cleanup and abate contamination, including replacement water (Orders 7b and 7c). The SIWP shall:

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

b. Fully assess the extent of discharges along preferential pathways (e.g., stormwater conveyance system [including Tucker Basin and other stormwater retention/infiltration basins in the system], sanitary sewer, other subsurface utilities) within the regional PCE plume to support evaluation of the potential threats to human health.

c. Fully assess the migration of discharges along vertical conduits (e.g., water supply wells and monitoring wells) within the regional PCE plume to support evaluation of the potential threats to human health.

d. Fully assess COC-impacted soil, soil vapor, and groundwater to support evaluation of the potential threats to sensitive receptors (i.e., schools, day care facilities, nursing homes, etc.).

e. Fully assess COC-affected soil, soil vapor, surface water (e.g., stormwater conveyance system infiltration/detention basins), and groundwater to support evaluation of the potential threats to ecological receptors.

f. Provide an implementation schedule for delineation activities described above. Step-out sampling shall proceed without significant interruption. Any failure to continue conducting sampling for a period exceeding ten business days is a significant interruption. If a significant interruption is anticipated or occurs, Dischargers shall notify the Lahontan Water Board (i.e., case manager) immediately with an explanation of the cause of the delay and steps the Dischargers will take to resolve it. Notification does not excuse noncompliance. Exceptions will be considered for interruptions related to circumstances beyond the Dischargers' control, such as unanticipated supplemental work plan review and approval process time, contractor availability, short-term adverse weather disruptions, and long-term adverse weather disruptions (i.e., the Basin Plan's Tahoe Basin annual soil disturbance prohibition period extending from October 15 to May 1).

g. The Dischargers' investigation strategy shall not stop based upon an alleged contribution from another site (e.g., the evaluation of the stormwater conveyance system on the Former Big O Tire site to Tucker Basin).

h. Document the procedural and analytical requirements for sampling soil, soil vapor, surface water (if applicable), subsurface utility backfill (e.g., stormwater and sanitary sewer conveyance system backfill) and groundwater.

i. Describe the quality assurance procedures, quality control activities, and technical activities that will be implemented to ensure data quality objectives are met.

~~h.~~j. Concurrent and phased on-Site and off-Site investigations are warranted due to the previous protracted investigations, and completion of the full Site characterization may require multiple submittals of SIWP for review and approval.

~~i.~~k. A SIWP, acceptable to the Executive Officer, shall be submitted in conformance with the deadline detailed in Attachment C, Time Schedule.

~~j.~~l. Scheduling, implementation, completion, and reporting of all Site investigation related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule and Attachment D, Technical Report Requirements.

~~4)~~3) **Develop, Submit, and Implement a Monitoring Well Installation Work Plan(s)**

The Monitoring Well Installation Work Plan(s) (MWIWP) shall propose a monitoring well network and program that is appropriate to 1) evaluate migration of COC-impacted groundwater, 2) evaluate regional PCE plume behavior at the plume boundaries, 3) evaluate COC trends in groundwater within the regional PCE plume, 4) evaluate COC trends within the estimated capture zones of water supply wells, 5) provide early detection capabilities (sentry wells or other equivalent mechanism) for impacted and threatened water supply wells, and 6) aid in evaluating interim and final remedial actions. The MWIWP shall:

a. Fully evaluate available groundwater and lithological data generated from the SIWP(s), Discharger's investigations, the SCAP Regional PCE Plume Investigation, and work conducted by others within the regional PCE plume to support well location and design rationale.

b. Identify specific data quality objectives and rationale for each well to be utilized in the monitoring well network and incorporated into the groundwater monitoring and reporting program. At a minimum, the well name, well/property owner, well location description, well installation method(s), well construction details (i.e., diameter and material, total depth, annular seal depths, filter pack interval, and screen interval), rationale, and sampling frequency shall be provided.

c. Provide copies of access agreements and/or written permission to install/utilize existing wells on properties owned by others, encroachment permits, and El Dorado County Department of Public Health drilling/well installation permits.

d. Provide an implementation schedule for installing any monitoring wells to be utilized in the monitoring well network within the MWIWP.

e. A MWIWP, acceptable to the Executive Officer, shall be submitted in conformance with the deadlines in Attachment C, Time Schedule.

f. Scheduling, implementation, completion, and reporting of all site assessment related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule and Attachment D, Technical Report Requirements.

~~5)~~4) **Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan**

The Vapor Intrusion Investigation Work Plan (VIIWP) shall evaluate current concentrations of waste constituents in on-Site and off-Site soil vapor and propose an investigation in accordance with the most current indoor air sampling and mitigation

guidance[5] to investigate areas with identified potential vapor intrusion threats (e.g., tenant spaces within the existing on-Site building). The VIIWP shall:

a. Implement an investigation to evaluate the risk posed to human health through the vapor intrusion to indoor air pathway from soil vapor (including vapors from VOC-affected groundwater) and consider the transport of COC-affected soil vapor and groundwater along preferential pathways (e.g., stormwater conveyance system, sanitary sewer, other subsurface utilities and their backfills). The investigation shall evaluate both on-Site and off-Site locations and consider temporal and seasonal variability.

b. Describe soil vapor probe installation and sampling methods for collection of sub-slab soil vapor samples.

c. Describe indoor air and ambient air sample collection methods.

d. Estimate the incremental and cumulative cancer risk and non-cancer hazard indices and include calculations, explanatory text interpreting and qualifying the results in Report(s).

e. Collect and evaluate indoor air data in accordance with the DTSC HERO HHRA Note 5, which identifies the EPA Region 9 Interim Indoor Air Response Action Levels for indoor air concentrations of TCE under differing exposure scenarios and determine if a Proposition 65 notice is required.

f. Identify and recommend soil vapor sampling points or wells and the associated sampling frequency to be used for any long-term soil vapor monitoring.

g. Provide an implementation schedule within the VIIWP.

h. Document the procedural and analytical requirements for sampling soil, soil vapor, surface water (if applicable), subsurface utility backfill (e.g., stormwater and sanitary sewer conveyance system backfill) and groundwater.

i. Describe the quality assurance procedures, quality control activities, and technical activities that will be implemented to ensure data quality objectives are met.

~~h.~~j. A VIIWP acceptable to the Executive Officer shall be submitted in conformance with the requirements detailed in Attachment C, Time Schedule.

~~i.~~k. Scheduling, implementation, completion, and reporting of all site assessment related activities required in this Order shall be conducted in conformance with the

[5] *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, CalEPA, October 2011) and *Advisory-Active Soil Gas Investigations* (CalEPA, July 2015

requirements detailed in Attachment C, Time Schedule and Attachment D, Technical Report Requirements.

~~6)~~5) **Prepare and Submit ~~a~~ Human Health and Ecological Risk Assessment~~s~~**

Prepare and submit a~~n initial and comprehensive~~ human health risk assessment (HHRA) and, if applicable, an ecological risk assessment, considering all waste constituents in soil, soil vapor, surface water, and groundwater, all exposure pathways and sensitive receptors and applying existing regulatory human health and ecological screening levels and/or acceptable risk assessment models in accordance with current guidance. ~~The initial HHRA shall be based upon currently available information. The comprehensive HHRA will evaluate additional threats identified from data collected during SIWP implementation. The initial and comprehensive HHRAs are to support the initial and comprehensive Interim Remedial Action Plans required in Order 6d.~~ The HH~~E~~RA~~s~~ shall, at a minimum:

a. Evaluate the potential risk COCs pose to the complete exposure pathways for soil and groundwater (i.e., ingestion, dermal exposure, inhalation and ecological exposure).

b. Evaluate the potential risk COCs pose to the vapor intrusion to indoor air pathway for soil vapor and groundwater, including potential short-term exposure to TCE.

c. Compare available soil, soil vapor, surface water, and groundwater COC concentrations to soil, soil vapor, and groundwater ESLs and MCLs to evaluate the potential and known threats the remaining contamination poses to human health and ecological receptors.

d. Complete a screening level evaluation or a Site-specific risk assessment. If Dischargers complete a Site-specific risk assessment, exposure levels selected must be relevant for exposure pathways and receptors for the Site and shall be acceptable to the Executive Officer and may be reviewed by the California Office of Environmental Health Hazard Assessment (OEHHA). Acceptable exposure levels for Site COCs shall be considered when developing remedial alternatives.

e. The ~~initial and comprehensive~~ HH~~E~~RA shall conform with the most current guidance documents[6], and be acceptable to the Executive Officer.

f. A~~n initial and comprehensive~~ HH~~E~~RA, acceptable to the Executive Officer, shall be submitted in conformance with the deadlines in Attachment C, Time Schedule.

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

g. Scheduling, implementation, completion, and reporting of all HH~~E~~RA (if applicable) related activities required in this Order shall be acceptable to the Executive Officer and conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

~~7)~~6) **Conduct Remedial Action**

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

a. **Current Corrective Actions**

i) The Dischargers shall continue to operate the existing AS/SVE system at the Site until alternate and/or additional remedial or mitigation methods are implemented or otherwise accepted.

b. **Develop, Submit, and Implement Interim Emergency Water Replacement Plan**

i) For all impaired wells within the affected area (see Findings 51 and 52) that are owned or operated by municipal water supply entities, provide a report to the Lahontan Water Board that is acceptable to the Executive Officer describing how the Dischargers intend to provide (or pay for) interim replacement water to each affected municipal supply entity until the permanent water supply plan is proposed and implemented. If interim replacement water is selected rather than payment, the report shall identify and include~~address~~ the following: source(s) of the replacement water, available information on the variability of the quality of the supply water, supply chain management considerations, proposed testing frequency based on any variability information and supply chain management plans, and a contingency plan.

ii) For all impaired wells within the affected area (see Findings 51 and 52) that are owned or operated by municipal water supply entities, provide (or pay for) interim emergency uninterrupted replacement water service and/or treatment.

iii) For all non-municipal water supply wells within the affected area determine whether wells are impaired.

iv) For all non-municipal water supply wells that are impaired, provide interim emergency uninterrupted replacement water service and/or treatment.

v) The requirement to provide interim emergency water supply will be suspended once the Discharger provides an acceptable permanent replacement water supply or treatment option as described in Order 7c.

vi) Provide a report to the Lahontan Water Board listing all wells that have been provided interim emergency uninterrupted water service. The report must include addresses and unique well identification numbers. The report must list the bottled water service being used or describe the treatment implemented and the water volume being provided or describe the alternative water supply option being implemented. The report must include documentation to show that interim water supply meets state primary and secondary drinking water standards. If interim water supply is denied by a property owner or occupant, the report shall include proof or evidence of such refusal.

vii) Provide a report to the Lahontan Water Board prior to changing any aspect of the method for providing interim replacement water service. However, in the case where the Discharger must change its method due to unplanned or unanticipated quality issues or availability, the Discharger may change its method without first notifying the Water Board if needed to maintain compliance with this Order.

viii) Scheduling, implementation, completion, and reporting of all Interim Emergency Water Replacement related activities required in this Order shall be acceptable to the Executive Officer and conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

c. **Develop, Submit, and Implement Permanent Water Replacement Plan**

i) Develop a comprehensive Permanent Water Replacement Plan (PWRP), acceptable to the Executive Officer, to provide long term uninterrupted wellhead treatment and/or replacement water service (provision of or payment for) to each affected water districts or non-municipal well owner within the "affected area" described in Finding 51, including those removed from service and/or destroyed due to PCE impairment (i.e. lost and/or reduced well yield shall be replaced/restored). Any replacement water shall, at a minimum, meet all applicable federal, state, and local drinking water standards (e.g., MCLs or any other another relevant regulatory standards in the Basin Plan) and shall have comparable quality to that pumped by the public water system or non-municipal water supply well owner prior to the discharge of waste. "Uninterrupted replacement water service" means that water shall be supplied continuously to meet human water consumption needs (including drinking and cooking) with no break in water availability longer than two hours.

The PWRP shall also evaluate the threat the regional PCE plume poses to water supply wells that may become impaired in the future and contain a contingency plan to immediately provide uninterrupted replacement water service, should those wells become affected. The PWRP shall include, at a minimum:

(1) Figures, tables, and narrative identifying and assessing supply wells affected by or threatened by the regional PCE plume.

(2) A summary of the impaired, impacted, and threatened supply well names, property/well owner, well location description, well installation method(s), well construction details (i.e., diameter and material, total depth, annular seal depths, filter pack interval, and screen interval) and most recent sampling data.

(3) A description of initial assessment sampling activities that have been, or will be, implemented in conformance with the SAP at each impaired, impacted, and threatened supply well to evaluate human health risk and impacts to beneficial use of groundwater.

(4) An evaluation of at least three different methods to provide replacement water to impaired water supply well owners including the "pay for option" to provide long term replacement water. The evaluation shall include the following, at a minimum:

(a) Discussion of the feasibility and timing to implement each method including the need and timing for permits, approvals, and environmental analysis.

(b) Comparison of the quantity of water that can be provided by each method relative to the specific water supply well need (e.g., typical domestic household supply need).

(c) An analysis of byproducts or wastes that may be generated by each method including disposal options and costs.

(d) A water quality monitoring and reporting plan to verify quality and performance of the implemented replacement supply or wellhead treatment.

(e) A communication plan to document discussion and consent for implementation of the replacement water supply or wellhead treatment from the public water suppliers and private well owners with affected wells.

ii) A PWRP, acceptable to the Executive Officer, shall be submitted in conformance with the deadlines in Attachment C, Time Schedule.

iii) Scheduling, implementation, completion, and reporting of all PWRP related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

d. **Interim Remedial Action Plan**

i) Submit an initial (in the near-term, based upon existing data) and comprehensive Interim Remedial Action Plan (IRAP), consistent with State Water Board Resolution No. 92-49, to evaluate interim remedial action alternatives where COCs pose threats to~~exceed screening levels for protection of~~ human health and the environment. The initial IRAP shall recommend one or more alternatives for implementation and include plans to mitigate imminent threats, if any, based upon currently available information. The comprehensive IRAP shall evaluate additional threats identified from data collected during SIWP implementation. The IRAPs shall propose remedial actions for~~address~~ on-Site and off-Site areas affected by discharges originating from the Site and provide the technical base~~i~~s for selecting and designing final remedial measures. ~~Phased and concurrent investigations will be necessary to support IRAP implementation. The IRAP shall recommend one or more alternatives for implementation and include plans to address immediate threats identified through currently available information and from data collected during SIWP implementation.~~ The IRAPs shall include, at a minimum:

(1) A plan to enhance contaminant mass removal and prevent~~address~~ off-Site COC migration at the Site.

(2) A plan to evaluate and identify~~destroy~~ any vertical conduits (e.g., water supply wells and/or monitoring wells) within the regional PCE plume that have the potential to influence contaminant transport to receptors.~~allow the downward migration of COCs.~~ The plan shall include recommendations for each specific vertical conduit and be included in the comprehensive IRAP.

(3) A plan to remediate or mitigate COCs identified in any preferential pathways (e.g., stormwater conveyance system/Tucker Basin) located within the regional PCE plume which have the potential to pose threats to human health and the environment as determined by the initial and comprehensive HHRAs required in Order 5. The plan shall include recommendations for specific preferential pathways or features (i.e., Tucker Basin) and be included in the comprehensive IRAP.

(4) A plan to remediate or mitigate any potential threats to human health at the Site or off-Site via the vapor intrusion to indoor air pathway as determined by the initial and comprehensive HHRAs required in Order 5.

(5) A plan to remediate or mitigate~~address~~ any imminent~~immediate~~ threats to the MUN beneficial use of groundwater outside of the PWRP actions as determined by the initial HHRA required in Order 5.

(6) A proposed time schedule for IRAP plan implementation

ii) An IRAP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements in Attachment C, Time Schedule.

iii) Scheduling, implementation, completion, and reporting of all IRAP related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

e. **Remedial Action Plan**

i) Develop and submit a comprehensive Remedial Action Plan(s) (RAP) for cleanup of wastes in the soil, soil vapor, and groundwater. The RAP shall include, at a minimum:

(1) A feasibility study or assessment report for evaluation of the cleanup technologies considered for remediation of soil, soil vapor and groundwater and the need for any additional interim remedial measures and pilot tests. Multiple remedial measures may be needed and may be implemented to achieve all cleanup goals.

(2) Cleanup proposals for soil, soil vapor, and groundwater that comply with State Water Board Resolution 92-49 and Resolution 68-16.

(3) A d~~D~~escription of the selection criteria for choosing the proposed method over other potential remedial options. Discuss the technical merit, suitability of the selected method under the given site conditions and waste constituents present, economic and temporal feasibility, and immediate and/or future beneficial results.

(4) A d~~D~~escription of any pilot projects intended to be implemented.

(5) An e~~E~~stimation of cumulative mass of wastes to be removed and timeframe to reach cleanup goals with the selected method(s). Include all calculations and methodology used to obtain this estimate.

(6) A proposed schedule for completion of the RAP.

ii) A RAP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements detailed in Attachment C, Time Schedule.

iii) Scheduling, implementation, completion, and reporting of all RAP related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

~~8)~~7) **Prepare and Submit a Public Participation Plan**

a. Prepare and submit a Public Participation Plan (PPP) in accordance with WC sections 13307.5 and 13307.6 and currently available~~USEPA, CalEPA, and DTSC~~ guidance for public participation.[7] The PPP shall be prepared with the goal of providing stakeholders and other interested persons with periodic, meaningful opportunities to review, comment upon, and to influence investigation and cleanup activities. The PPP shall include the following, at a minimum:

i) Procedures to be implemented to communicate water quality testing results in writing to:

(1) All owners of all impaired, impacted, or threatened water supply wells within the regional PCE plume, and

(2) Relevant regulatory agencies (e.g., Lahontan Water Board and El Dorado County Department of Public Health). Procedures shall consider the need for materials to be provided in languages other than English.

ii) Community involvement strategies to be used, such as use of fact sheets, plans to conduct community meetings or workshops, and establishing an information repository.

iii) Procedures to be implemented to meet~~address~~ the public participation requirements for each IRAP and RAP implementation stage.

(1) The following tasks shall be completed by the deadlines in Attachment C, Time Schedule:

(a) Submit a baseline community assessment.

(b) Submit an interested persons contact list.

(c) Submit a draft fact sheet that provides information, appropriately targeted to the literacy and translational needs of the community, about the investigation and remedial activities concerning the discharges of waste at the Site.

iv) Public participation activities shall coincide with key decision-making points throughout the process as specified or as directed by the Executive Officer.

v) A PPP, acceptable to the Executive Officer, shall be submitted in conformance with the requirements in Attachment C, Time Schedule.

[7] Example: Public Participation Manual (DTSC, 2001) https://dtsc.ca.gov/get-involved/policies-procedures-public-participation-program/

vi) Scheduling, implementation, completion, and reporting of all PPP related activities required in this Order shall be conducted in conformance with the requirements detailed in Attachment C, Time Schedule.

~~9)~~8) **Conduct Monitoring**

Implement a groundwater and remediation system performance monitoring program as set forth in Attachment E.

~~10)~~9) **Time Schedule**

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

OTHER REQUIREMENTS AND SPECIFICATIONS

~~11)~~10) **Authorized Inspection and Entry**

To the extent allowed by law, each Discharger shall provide the Lahontan Water Board's authorized representative(s) permission to~~shall be allowed~~:

a. Entry upon premises owned by such Discharger where a regulated facility or activity is located, conducted, or where records are stored, under the conditions of this Order;

b. Access to copy any records that are stored under the conditions of this Order;

c. Access to inspect any facility owned by such Discharger and, equipment (including monitoring and control equipment), practices, or operations conducted by Discharger regulated or required under this Order; and

d. The right to photograph, sample, and monitor the Site and/or off-Site work equipment and infrastructure for the purpose of ensuring compliance with this Order, or as otherwise authorized by the California WC.

~~12)~~11) **Contractor/Consultant Qualification**

As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, an appropriately experienced California registered professional civil engineer or geologist and signed by the registered professional. All technical reports submitted by the Discharger(s) shall include a statement signed by the authorized representative certifying under penalty of law that the representative has examined and is familiar with the report and that to his knowledge, the report is true, complete, and accurate. All technical

documents shall be signed by and stamped with the seal of the above-mentioned qualified professionals that reflects a license expiration date.

~~13)~~12) **Compliance with All Laws and Requirements**

This Order is not intended to permit or allow the Discharger(s) to cease any work required by any other Order issued by the Lahontan Water Board, nor shall it be used as a reason to stop or redirect any investigation or cleanup or remediation programs ordered by the Lahontan Water Board or any other agency. Furthermore, this Order does not exempt the Discharger(s) from compliance with any other laws, regulations, or ordinances which may be applicable, nor does it legalize these waste treatment and disposal facilities, and it leaves unaffected any further restrictions on those facilities which may be contained in other statutes or required by other agencies.

~~14)~~13) **Notice of Changed Name or Ownership**

The Discharger~~(s)~~ Seven Springs shall submit a notice to the Lahontan Water Board 30-days in advance of any planned changes in name, ownership, or control of the Site and shall provide a notice to the Lahontan Water Board 30-days in advance of any planned physical changes to the Site that may affect compliance with this Order. In the event of a change in ownership or operator, the Discharger~~(s)~~ Seven Springs also shall provide a notice 30 days in advance, by letter, to the succeeding owner/operator of the existence of this Order, and shall submit a copy of this advance notice to the Lahontan Water Board. Transfer of ownership does not automatically transfer responsibility for the requirements in this Order.

~~15)~~14) **Well Abandonment Approval**

Abandonment of any groundwater well(s) utilized in the Groundwater MRP must be approved by and reported to the Lahontan Water Board at least 30 days in advance. If, in the Executive Officer's reasonable judgment, any removed groundwater well is necessary to monitor the discharge of waste, the well must be replaced within 90 calendar days, at a location approved by the Lahontan Water Board. With written justification, the Lahontan Water Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all abandonment work shall be completed in accordance with California Department of Water Resources Bulletin 74-90, "California Well Standards," Monitoring Well Standards Chapter, Part III, Sections 16-19.

~~16)~~15) **Extensions**

In the event compliance cannot be achieved within the terms of this Order, the Dischargers have the opportunity to request, in writing, an extension of the time specified. The extension request shall include an explanation why the specified date could not or will not be met and justification for the requested period of extension. Any extension request shall be submitted as soon as the situation is recognized and no

later than the compliance date. Extension requests not approved in writing with reference to this Order are denied.

~~17)~~16) **Delegated Authority to the Executive Officer**

The Lahontan Water Board, through its Executive Officer, may revise this Order as additional information becomes available. Upon request by the Dischargers, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Dischargers under this Order. The authority of the Lahontan Water Board, as contained in the California WC, to order investigation and cleanup, in addition to that described herein, is in no way limited by this Order.

Reference herein to determinations and considerations to be made by the Lahontan Water Board regarding the terms of the Order shall be made by the Executive Officer or his/her designee. Decisions and directives made by the Executive Officer with respect to this Order shall be as if made by the Lahontan Water Board.

~~18)~~17) **Continue Uninterrupted Cleanup and Abatement**

The Dischargers shall continue to implement any required remediation or monitoring activities until such time as the Executive Officer determines that sufficient cleanup has been accomplished and this Order has been rescinded.

~~19)~~18) **Cost Reimbursement**

The Dischargers shall reimburse the Lahontan Water Board for the reasonable costs actually incurred in cleaning up the waste, abating the effects of the waste, supervising cleanup and abatement activities, or taking other remedial action ~~associated with oversight of the investigation and cleanup~~ of the waste at or emanating from the Site.

~~20)~~19) **Reports Submitted Under Penalty of Law**

The Lahontan Water Board, under the authority given by WC section 13267, subdivision (b)(1), requires ~~you to include~~ a statement in all reports submitted under this Order signed by a senior authorized representative (not by a consultant). The statement shall be in the following format:

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

~~21)~~20) **Electronic Submission of Reports**

On September 30, 2004, the State Water Board adopted the resolution to revise regulations in Chapter 30, Division 3 of Title 23 of CCR, which requires persons to ensure electronic submission of laboratory analytical data (i.e., soil, soil vapor, or groundwater chemical analysis) and locational data (i.e., location and elevation of groundwater monitoring wells) via the Internet to the State Water Board's GeoTracker database. You must upload all available Electronic submittal of information (ESI) concerning the Site to the State Water Board's GeoTracker database: the report (in PDF format), laboratory analytical data (in electronic data format [EDF]), monitoring event information in GEO_WELL format, an updated site map (GEO_MAP) showing any new monitoring well locations, boring logs in PDF (GEO_BORE) to be used to link to well locations, monitoring well latitude and longitude (GEO_XY) survey data, and monitoring well elevation data (GEO_Z). Hard copy paper reports, which have already been electronically uploaded to GeoTracker, are no longer required to be submitted to the Water Board. The regulations and other background information are available at https://geotracker.waterboards.ca.gov

~~22)~~21) **Enforcement**

Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, imposed either administratively by the Lahontan Water Board or judicially by the Superior Court in accordance with Water Code sections 13268, 13304, 13308, and/or 13350, and/or referral to the Attorney General of the State of California.

~~23)~~22) **Bankruptcy**

None of the obligations imposed by this Order on the Dischargers are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are imposed pursuant to the police powers of the State of California intended to protect the public health, safety, welfare, and environment.

Ordered by: _____ Date: _____

MICHAEL PLAZIAK, P.G.
EXECUTIVE OFFICER

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ATTACHMENT C: TIME SCHEDULE

ATTACHMENT C: TIME SCHEDULE

TASK	DEADLINE[8]
Order No. 1, Conceptual Site Model	
Conceptual Site Model:	2 months after Order adoption
~~**Order No. 2, Sampling and Analysis Plan and Quality Assurance Project Plan**~~	
~~Sampling and Analysis Plan~~	~~2 months after Order adoption~~
~~Quality Assurance Project Plan~~	~~2 months after Order adoption~~
Order No. 23, Site Investigation Work Plan(s)	
Site Investigation Work Plan	2 months after Order adoption
Commence Site Investigation(s)	Within 2 months of Water Board acceptance
Complete Site Investigation	96 months after Order adoption
Site Investigation Completion Report	119 months after Order adoption
Order No. 34, Monitoring Well Installation Work Plan(s)	
Monitoring Well Installation Work Plan	112 months after Order adoption
Commence Monitoring Well Installation	Within 2 months of Lahontan Water Board acceptance
Complete Monitoring Well Installation	186 months after Order adoption
Monitoring Well Installation Completion Report	249 months after Order adoption
Order No. 45, Vapor Intrusion Investigation Work Plan	
Vapor Intrusion Investigation Work Plan	2 months after Order adoption
Commence Vapor Intrusion Investigation	Within 2 months of Lahontan Water Board acceptance
Complete Vapor Intrusion Investigation	96 months after Order adoption
Vapor Intrusion Investigation Completion Report	119 months after Order adoption
Order No. 56, Human Health and Ecological Risk Assessment	
Initial Human Health and Ecological Risk Assessment	2 months after Order adoption
Comprehensive Human Health and Ecological Risk Assessment	116 months after Order adoption

[8] Lahontan Water Board sStaff recognizes the limited field season in the Tahoe area and understands extensions may be required due to weather and seasonal constraints. Extensions will be evaluated and granted as described by Order 16.time

ATTACHMENT C: TIME SCHEDULE

TASK	DEADLINE[9]
Order No. 67 Conduct Remedial Action	
Order No. 67a. Current Remedial Actions	
Current Corrective Action Reporting	Quarterly; 15th of March, June, September, and December of every year until completion
Order No. 67b. Interim Emergency Water Replacement Plan	
Order 67bi. Report Describing how Dischargers Intend to Provide (or Pay for) Interim Emergency Water Replacement to Municipal Supply Entities.	Within 1 month after Order adoption
Order 67bii. Provide (or Pay for) Interim Emergency Water Replacement to Municipal Supply Entities	Within 2 months after Order adoption
Order 67biii. Determine whether non-municipal water supply wells are impaired	Within 31 month after Order adoption
Order 67biv. Provide Interim Emergency Water Replacement to impaired non-municipal water supply wells	Within 5 months45 days after Order adoption
Order 67bvi. Interim Emergency Water Replacement Report	Quarterly; 15th of March, June, September, and December of every year until Permanent Water Replacement Plan acceptance
Order 67bvii. Changes to Interim Water Replacement Report	Within 14 days prior to changing any aspect of Interim Water Replacement
Order No. 67c. Permanent Water Replacement Plan	
Submit Permanent Water Replacement Plan	116 months after Order adoption
Implement Water Replacement Plan	Within 2 months of Lahontan Water Board acceptance
Complete Permanent Water Replacement Plan *with exception of ongoing operation and maintenance	18 months after Order adoption *will be revisited based on date of actual CAO issuance and seasonal timing
Water Replacement Progress Reports	Quarterly following Permanent Water Replacement Plan acceptance; 15th of March, June, September, and December of every year
Water Replacement Annual Report	Every 12 months after Order adoption until task completion

[9] Lahontan Water Board sStaff recognizes the limited field season in the Tahoe area and understands extensions may be required due to weather and seasonal constraints. Extensions will be evaluated and granted as described by Order 16.

ATTACHMENT C: TIME SCHEDULE

TASK	DEADLINE[10]
Order No. 67d, Interim Remedial Action Plan	
Initial Interim Remedial Action Plan	2 months after Order adoption
Implement Initial Interim Remedial Action Plan	Within 2 months of Lahontan Water Board acceptance
Comprehensive Interim Remedial Action Plan	119 months after Order adoption
Implement Comprehensive Interim Remedial Action Plan	Within 2 months of Lahontan Water Board acceptance
Interim Remedial Action Progress Reports	Every 6 months after Order adoption until task completion
Interim Remedial Action Completion Report	24 months after Order adoption
Order No. 67e, Remedial Action Plan	
Remedial Action Plan	24 months after Order adoption
Implement Remedial Action Plan	Within 2 months of Lahontan Water Board acceptance
Complete All Remedial Actions *with exception of ongoing operation, maintenance, and verification monitoring activities	5 years after Order adoption
Remedial Action Completion Report	2 months after remedial action completion
Order No. 78, Public Participation Plan	
Public Participation Plan	2 months after Order adoption
Baseline Community Assessment	2 months after Order adoption
Interested Persons Contact List	2 months after Order adoption
Draft Fact Sheet	2 months after Order adoption
Send Approved Final Fact Sheet	On schedule to be determined by Executive Officer
Public Meeting or Workshops	Every 126 months after Order adoption until task completion
Public Participation Plan Progress Reports	Every 126 months after Order adoption until task completion
Order No. 89, Conduct Monitoring	
Conduct Monitoring	See Attachment E for monitoring frequencies and reporting requirements

[10] Lahontan Water Board sStaff recognizes the limited field season in the Tahoe area and understands extensions may be required due to weather and seasonal constraints. Extensions will be evaluated and granted as described by Order 16.

ATTACHMENT D: TECHNICAL REPORTING REQUIREMENTS FOR CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)

ATTACHMENT D: TECHNICAL REPORTING REQUIREMENTS FOR CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)

Site Investigation, Monitoring Well Installation, and Vapor Intrusion Investigation Reporting Requirements

i. A narrative description of work performed, and information obtained.

ii. Boring logs, monitoring and soil vapor well construction summaries (if applicable), well survey data, and analytical data.

iii. Site map(s) showing the location of all borings (i.e., soil sampling points and depth discrete groundwater sampling points), and Site monitoring wells, sensitive receptors, and supply wells. All Figures must be drawn to scale, be in color, and label relevant features, such as roads, relevant property boundaries, etc. If appropriate, the site maps should also show the location of all identified preferential pathways (e.g., utility backfills) and vertical conduits relevant supply wells.

iv. Soil vapor iso-concentration map(s) showing all sampling locations and data points with boundary lines of chlorinated hydrocarbons drawn out to the relevant ESL. Question marks shall indicate areas where boundaries are unknown.

v. Groundwater iso-concentration map(s) showing all sampling locations and data points with boundary lines of chlorinated hydrocarbons in groundwater drawn out to 0.5 µg/L (i.e., the method detection limit representing natural background conditions). Question marks shall indicate areas where boundaries are unknown.

vi. Description of the geology and hydrogeology encountered within the investigation area footprint. Include geologic cross sections extending from the Site to the limits of groundwater sampling that show depth discrete groundwater sampling results.

vii. Depth of first encountered groundwater at all points sampled. State whether perched zones were encountered and the basis for this finding.

viii. Evaluation of COC transport along preferential pathways and/or vertical conduits and the basis for these conclusions.

ix. Description of data gaps identified during investigations and schedule for investigating and evaluating~~addressing~~ data gaps.

ATTACHMENT E: MONITORING AND REPORTING PROGRAM FOR CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)

This Monitoring and Reporting Program (MRP) is part of Cleanup and Abatement Order No. R6T-2022-(PROPOSED) (CAO). Failure to comply with this program constitutes noncompliance with the CAO and California Water Code, which can result in the imposition of civil monetary liability. All sampling and analyses shall be conducted in conformance with the SAP using USEPA-approved methods. The test methods chosen for detection of the constituents of concern shall be subject to review and concurrence by the Lahontan Water Board.

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

Groundwater Monitoring

The Dischargers shall collect groundwater samples from groundwater monitoring wells installed for the purpose of Site investigation and monitoring. Any monitoring wells installed in the future shall be added to the groundwater monitoring program and sampled quarterly unless the Dischargers propose and receive concurrence of changes to the sampling frequency. The top of casing and adjacent ground surface for each monitoring well shall be surveyed for location and elevation in conformance with GeoTracker requirements. The groundwater surface elevation (in feet above mean sea level [MSL]) in all monitoring wells shall be measured and used to determine the gradient and direction of groundwater flow.

The Dischargers shall also collect groundwater samples from threatened, impacted, and impaired active water supply wells for the purpose of evaluating human health risk and impacts to the beneficial use of groundwater. Sampling of these active water supply wells shall be conducted on a quarterly basis unless the Dischargers propose and receive concurrence of changes to the sampling frequency.

The following shall constitute the monitoring program for groundwater.

Monitoring Parameters and Methods

Constituent	**EPA Method**
Volatile Organic Compounds (full scan)	EPA 8260B
Temperature	Field*
pH	Field*
Electrical Conductivity	Field*
Dissolved Oxygen	Field*
Oxidation-Reduction Potential (ORP)	Field*
Turbidity	Field*

* Field parameters shall be measured using appropriately calibrated instrumentation.

Remediation System(s) Performance Monitoring

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

1. Maps showing location of all remediation wells and groundwater monitoring wells, if applicable;
2. Status of each remediation system including amount of time operating and down time for maintenance and/or repair;
3. Air sparge well operating records including status of each well and volume and pressure of air being injected;
4. Soil vapor extraction well records including status of each well and photoionization detector (PID) readings of other acceptable methods of determining relative volatile concentrations taken at a minimum quarterly. Readings of volatile concentrations drawn from SVE wells need to be taken at a frequency that allows the efficient operation and evaluation of the SVE system;
5. In-Situ well operating records, including injection volume and pressure, of the amendment being introduced;
6. The report shall include documentation and manifest forms of waste generated during operation of the remedial system;
7. The report shall include copies of all required valid permits to construct and operate the remedial systems;
8. The report shall include tables summarizing the operating and performance parameters for the remediation systems; and
9. System inspection sheets shall document field activities conducted during each Site visit and shall be included in quarterly monitoring reports.

Monitoring Frequencies

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

Reporting Requirements

1. The Dischargers shall report all monitoring data and information as specified herein. Reports that do not comply with the required format will be REJECTED and the Dischargers shall be deemed to be in noncompliance with the Monitoring and Reporting Program.

   Quarterly groundwater monitoring reports shall be submitted to the Lahontan Water Board according to the schedule below.

Monitoring Period	**Report Due**
January – March	June 15
April – June	September 15
July – September	December 15
October – December	March 15

   Groundwater monitoring reports shall include contour maps showing groundwater elevations at the Site, the groundwater flow direction(s), and concentrations of the contaminants of concern. The quarterly groundwater monitoring reports shall include tables summarizing the historical depth-to-water, groundwater elevations, and historical analytical results for each monitoring well and active water supply well. The results of any monitoring done more frequently that required at the locations specified in the Monitoring and Reporting Program shall be reported to the Lahontan Water Board. Field monitoring well sampling sheets and well maintenance logs shall be completed for each monitoring well sampled and included in the report.

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

Monitoring Period	**Report Due**
January – March	June 15
April – June	September 15
July – September	December 15
October – December	March 15

Remediation progress reports shall include an estimate of the cumulative mass of contaminant removed from the subsurface, system operating time, the effectiveness of the remediation system, any field notes pertaining to the operation and maintenance of the system (and remediation wells) and, if applicable, the reasons for and duration of all interruptions in the operation of any remediation system an actions planned or taken to correct and prevent interruptions.

2. In reporting the monitoring data, the Dischargers shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements. All data shall be submitted in electronic form in a form acceptable to the Lahontan Water Board.

ATTACHMENT 1B: "MARKUP" OF CLEANUP AND ABATEMENT ORDER R6T-2022-(PROPOSED) FOR LAKE TAHOE LAUNDRY WORKS, ATTACHMENT A STAFF REPORT SUPPORTING CLEANUP AND ABATEMENT ORDER NO R6T-2022-(PROPOSED)[2]

Proposed Revisions to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) Memorandum dated August 16, 2023, Requiring Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc., to Assess, Cleanup and Abate Waste Discharged to Waters of the State Pursuant to California Water Code Sections 13267 and 13304 at 1024 Lake Tahoe Boulevard and Regional Perchloroethylene Groundwater Plume, South Lake Tahoe, El Dorado County.

[2] Figures and tables are not included in the "Markup" document.

Proposed Revisons to Cleanup and Abatement Order No. R6T-2022-Proposed Memorandum, Attachment 1b - Markup of Cleanup and Abatement Order R6T-2022-Proposed for Lake Tahoe Laundry Works, Attachment A Staff Report Supporting Cleanup and Abatement Order No. R6T-2022-(PROPOSED)

STAFF REPORT SUPPORTING
CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)
REQUIRING

SEVEN SPRINGS LIMITED PARTNERSHIP
FOX CAPITAL MANAGEMENT CORPORATION
BOBBY PAGES, INC
CONNOLLY DEVELOPMENT, INC

TO ASSESS, CLEANUP, AND ABATE
WASTE DISCHARGED TO WATERS OF THE STATE PURSUANT TO CALIFORNIA WATER CODE SECTIONS 13267 AND 13304
FORMER LAKE TAHOE LAUNDRY WORKS

1024 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
AND REGIONAL GROUNDWATER PLUME

SITE CLEANUP PROGRAM CASE NO. T6S043
GEOTRACKER GLOBAL ID NO. SL0601754315

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LIST OF ACRONYMS AND ABBREVIATIONS

1,1-DCE	1,1 dichloroethylene
2017 CAO	2017 Cleanup and Abatement Order
AS/SVE	air sparge/soil vapor extraction
bgs	below ground surface
CAO	Cleanup and Abatement Order
CCTV	Closed Circuit Television
City of Modesto litigation	*City of Modesto v. The Dow Chemical Company* (San Francisco Superior Court, Case Nos. CGC-98-999345/999643)
cis-1,2 DCE	cis-1,2 dichloroethylene
CalEPA	California Environmental Protection Agency
COC	contaminants of concern
CPT	cone penetrometer test
CSDS	Chemical Safety Data Sheet
CSM	Conceptual Site Model
depo.	deposition
DGS	Department of General Services
Dischargers	Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc.
District	South Tahoe Public Utility District
DNAPL	dense non-aqueous phase liquid
Dow	The Dow Chemical Company
E_2C	Environmental Engineering Consulting & Remediation, Inc.
e.g.,	exempli gratia which means for example
EKI	EKI Water and Environment, Inc
EPA	Environmental Protection Agency
ESL	environmental screening level
et al.	*et alia*, and others
etc.	*et cetera*, and so on
EVS	Earth Volumetric Studio™
Fox	Fox Capital Management Corporation
GAC	granular activated carbon
GMP	Groundwater Management Plan
gpm	gallons per minute
Ibid.	in the same source
Id.	refers to the immediately preceding cited authority
i.e.,	phrase id est, which means that is
IFI	International Fabricare Institute
Impaired	PCE concentration in supply well has been detected above the MCL
Impacted	PCE concentration in supply well has been detected below MCL
ISR	Investigation Summary Report
Lahontan Water Board	Lahontan Regional Water Quality Control Board

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

LBWC	Lukins Brothers Water Company
µg/L	micrograms per liter
MCL	California Maximum Contaminant Level
MGD	million gallons per day
mg/kg	milligram per kilogram
MIP	membrane interface probe
MSDS	material data safety sheet
MTBE	methyl tertiary-butyl ether
MUN	municipal and domestic supply
NIOSH	National Institute for Occupational Safety Hazards
Order	Lahontan Water Board's Cleanup and Abatement Order No. R6T-2022-(PROPOSED)
p.	page
pp.	pages
PCE	perchloroethylene, tetrachloroethylene
PES	PES Environmental, Inc
PHG	Public Health Goals
PPG	PPG Industries, Inc.
ppm	parts per million
RCRA	Resource Conservation Recovery Act
SCAP	Site Cleanup Subaccount Program
SCS	small community system
Seven Springs	Seven Springs Limited Partnership
SF Bay Water Board	Regional Water Quality Control Board, San Francisco Region
Site	Former Lake Tahoe Laundry Works Site
State Water Board	State Water Resources Control Board
supply wells	municipal, small community system, and domestic supply wells
TCE	trichloroethylene
Threatened	PCE has not been detected in supply well but may become impacted in the future due to plume migration
TKWC	Tahoe Key Water Company
trans-1,2 DCE	trans-1,2 dichloroethylene
United Artists	*United Artists Theatre Circuit, Inc. v. Regional Water Quality Control Board, San Francisco Region* (2019) 42 Cal.App.5th 851
US EPA	United States Environmental Protection Agency
VOCs	volitale organic comounds
Vol.	volume

STAFF REPORT SUPPORTING
CLEANUP AND ABATEMENT ORDER NO. R6T-2022-(PROPOSED)

1 INTRODUCTION

This Staff Report provides additional details regarding the issuance basis for the Lahontan Regional Water Quality Control Board's (Lahontan Water Board) Cleanup and Abatement Order No. R6T-2022-(PROPOSED) (Order) to Seven Springs Limited Partnership (Seven Springs), Fox Capital Management Corporation (Fox), Bobby Pages, Inc., and Connolly Development, Inc. (collectively referred to Dischargers). There are two main topics addressed herein:

- Application of *United Artists Theatre Circuit, Inc. v. Regional Water Quality Control Board, San Francisco Region (2019) 42 Cal.App.5th 851* (*United Artists*).

This first portion of the Staff Report addresses the El Dorado Superior Court's remand of the 2017 Cleanup and Abatement Order (2017 CAO) as it applied to Fox and the criteria established in *United Artists*. The Staff Report supports identification of Fox as a Discharger, and provides citations to both specific evidence of knowledge in this case as well as publicly available information that demonstrates that a former landowner/landlord should have known that the dry cleaning activities on the Former Lake Tahoe Laundry Works Site (Site) created a reasonable possibility of discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance.

- Technical evaluation supporting the Order's investigation and remediation requirements.

One of the unresolved questions during the adoption of the 2017 CAO was whether the Site (Figure 1 and Figure 2)[1] was connected to the regional perchloroethylene (PCE) plume (Figure 3, Figure 4, and Figure 5)[2]. Although data available at the time supported that conclusion, there were some data gaps that created some doubt. Subsequent investigations, including the State Water Resources Control Board (State Water Board) Site Cleanup Subaccount Program (SCAP) funded investigation and the Dischargers' own investigations, have produced data demonstrating that discharges of waste at the Site have contributed to the regional PCE plume. Following the *United Artists* case discussion, this Staff Report will cover the following technical details:

- Key information supporting the Order's investigation and cleanup and abatement requirements;
- A review of historical and recent investigations supporting the connection between PCE contamination originating from the Site and the regional PCE plume;

[1] Figure 1 displays the Site's general location.
Figure 2 displays the Site's boundaries, existing monitoring well network, and the City of South Lake Tahoe's stormwater detention/infiltration basin (Tucker Basin) which received runoff from the Site and the ~~Former~~ Big O Tires site.
[2] Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 4 displays the estimated lateral extent of the regional PCE plume on a vertical cross section map.
Figure 5 displays the estimated vertical extent of the regional PCE plume along the A-A' transect from the Site to the Tahoe Keys.

- An initial screening level evaluation indicating that discharges of PCE have impacted soil, soil gas, and groundwater at concentrations that pose a threat to human health and the environment.
- On-site discharges of PCE have impaired the municipal and domestic supply (MUN) beneficial use of groundwater in the Tahoe Valley South Basin; and
- A summary of remedial action conducted at the Site and the need for additional remedial action to restore the impaired MUN and prevent adverse health effects from potential exposure to PCE in soil, soil gas, and groundwater.

2 DISCHARGER LIABILITY

The 2017 CAO provided a Site owner/operator history, which has been reiterated in this attached Staff Report. None of that history was contested in the petition and litigation process.

Connolly Development, Century Properties Equity Fund 73 and Bobby Pages, Inc., were identified as Dischargers in the 2017 CAO and did not contest liability.

Seven Springs petitioned and then litigated the 2017 CAO. Their status as a Discharger and liability to clean up and abate contamination on or originating from their property has also been established.

2.1 Application of *United Artists*

The El Dorado Superior Court granted Fox's Petition for Writ of Mandate and vacated the 2017 CAO, only as it applied to Fox, and remanded the matter to the Lahontan Water Board to follow the new binding law in *United Artists*. That case found, in particular, that a former landlord can be a discharger:

> [W]e conclude a prior owner may be named in a cleanup order as someone who has "permitted" a discharge if it knew or should have known that a lessee's activity presented a reasonable possibility of discharge into waters of the state of wastes that could create or threaten to create a condition of pollution or nuisance. This standard gives meaning to the word "permitted" without requiring that a regional board show a degree of awareness of risk inconsistent with the Legislature's purpose that the state "exercise its full power and jurisdiction to protect the quality of waters in the state." (§ 13000.) (*United Artists*, supra, 42 Cal.App.5th at 864–865).
>
> [T]he term "permitted" is expansive enough to encompass a situation where a landlord let a discharge occur by allowing an activity to take place, where the landlord knew or should have known the general activity created a reasonable possibility of discharge. Construing section 13304 to authorize regional boards to name such owners in cleanup orders elevates their interest in mitigating the risk of discharges of wastes by lessees- and landowners are in a position to prevent such discharges. (*Id.* at 851, 888 [emphasis added] [citing *Leslie Salt v. San Francisco*

> *Bay Conservation and Development* Commission (1984) 153 Cal.App.3d 605, 617].)

Under the rule stated in *United Artists*, Fox is a discharger because it knew or should have known – either from publicly available information or observation- that the dry cleaning operations occurring at the Site created a reasonable possibility of discharge that could pollute waters of the State or create a nuisance. The evidence in the record is that Fox had the ability to inspect the dry cleaning operation. Specifically, leases discussed in the Baisley deposition indicate "Right of Entry" clause (Baisley depo., April 13, 2007, at p. AR011462[3] for original lease and Baisley depo., April 13, 2007, at p. AR011474 for reassignment of sublease). The Baisley deposition also indicated Jim Meridith was the Site manager for Fox and had contact with Baisley in the 1980s timeframe (Baisley depo., April 13, 2007, at p. AR011429 and AR011435.) Evidence cited below from the *City of Modesto* litigation includes commonly known sources of discharge, many of which could have been observed during routine inspections of the facility.

The analysis begins with the timeframe when Fox owned the site. Fox did not contest the following facts from the 2017 CAO: The coin operated dry cleaning unit used PCE as a cleaning solvent and was present at the Site from 1972 to about 1979/1980. Century Properties Equity Fund 73 purchased the Site in 1974 and sold it on December 19, 1985. Fox was the general partner of Century Properties Equity Fund 73 and subsequently changed its name to Fox in or around 1986. As Century Properties Equity Fund 73's general partner, it is liable for all obligations of the limited partnership, including the environmental contamination from the operation of the partnership. As a general partner, Fox, formerly Fox & Carskadon Financial Corporation, also had knowledge of and control over the activities occurring at the Site that caused the discharge.

The timeframe of Fox's ownership of, and dry cleaning operations on, the Site approximates the same timeframe under consideration in *United Artists.* United Artists owned the property until 1972 and was the master lessor until 1978]). During the relevant timeframe, 1972-1980, it was well known that PCE was a hazardous substance. The San Francisco Superior Court in *United Artists* case refers to evidence in *City of Modesto* litigation, which documents a fraction of the publicly-available information demonstrating that the risks of PCE have been documented for decades:

> PCE, also known as tetrachloroethylene, is a molecule containing chlorine atoms and carbon atoms. It is also characterized as a 'volatile halogenated organic compound,' a 'halogenated hydrocarbon', a 'chlorinated solvent' or a 'chlorinated hydrocarbon.' As shorthand, it is referred to as 'perc' or PCE. All chlorinated hydrocarbons, like all solvents other than water, are 'toxic.' In 1978, the National Institute for Occupational Safety Hazards (NIOSH) recommended that PCE be

[3] All references to AR#### are to the administrative record in *Seven Springs Limited Partnership v. Lahontan Regional Water Quality Control Board* (El Dorado County Superior Court, Case No. SC20180061), and *Fox Capital Management Corporation v. Lahontan Regional Water Quality Control Board* (El Dorado County Superior Court, Case No. SC20170189).

> handled as if it were a human carcinogen. In 1980 the State of California began regulating PCE as a hazardous waste. (*United Artists, supra*, 42 Cal.App.5th at 861, citing *City of Modesto v. The Dow Chemical Company* (2018) 19 Cal.App.5th 130, 137.)

United Artists establishes that "[t]he record indicates that the dangers of dry-cleaning solvents in general, and PCE in particular, became gradually known during and after UATC's ownership of the Center." (*United Artists,* p. 862). In other words, *United Artists* found that, during the same timeframe that Fox owned and leased out the Site to a coin-operated dry cleaners, the following information was available:

> For example, in 1953, the Supreme Court made reference to a statute addressing "Dry Cleaning Equipment Employing Volatile and Inflammable Solvents." (*State Bd. of Dry Cleaners v. Thrift-D-Lux Cleaners* (1953) 40 Cal.2d 436, 440, 254 P.2d 29.) A 1961 State Fire Marshal permit required the dry cleaner at the Center to take certain precautions against vapors from unidentified dry-cleaning solvents. In 1965 the Legislature set a specific maximum level for PCE vapor in former Health and Safety Code section 13399.5, above which would be considered a " 'dangerous toxic concentration.' " (Stats. 1965, ch. 1781, § 13, p. 3974.) In 1975, the City of Santa Clara adopted an ordinance prohibiting the discharge of a variety of pollutants into the sewer system, including chlorinated hydrocarbons like PCE. In 1977, the Director of the National Institutes of Health published in the Federal Register a summary of a study regarding the "possible carcinogenicity" of PCE. (Report on Bioassay of Tetrachloroethylene for Possible Carcinogenicity, 42 Fed.Reg. 55270–55271 (Oct 3, 1977).) In early 1978, the Environmental Protection Agency (EPA) published a list of toxic pollutants, including PCE. (Publication of Toxic Pollutant List, 43 Fed.Reg. 4108–4109 (Jan. 25, 1978).) In 1980, the EPA recognized PCE as a potential human carcinogen and adopted water quality standards for PCE. (Water Quality Criteria Documents, 45 Fed.Reg. 79318, 79340 (Nov. 28, 1980).) Other state and federal legislative and regulatory developments followed. It is also notable that the 1969 Study Panel Report that resulted in the enactment of the Porter–Cologne Act recognized the danger of chlorinated hydrocarbons. (Study Panel Report, at p. 41.) Specifically, with reference to pesticides, the Report observed, "Extensive studies of the use of pesticides, and particularly of the chlorinated hydrocarbons, have shown alarming residual concentrations in fish and fowl across wide areas of the earth, as well as here in California. Present accumulations of these toxic, nondegradable chemicals are causing heavy mortality to some birds and perhaps in fish. These concentrations do not seem to be dangerous to people in the amounts now found in California, but there is legitimate concern for the future." (Ibid.) (*United Artists, supra,* 42 Cal.App.5th at 861–862.)

As discussed in *United Artist* case, "if an owner, who necessarily profits from the activities of its lessees, knows or should know of such a risk and chooses to lease to an operator of that type of business, the owner may properly be held responsible for any discharges that occur." (*United Artists, supra,* 42 Cal.App.5th at 880.)

2.2 Evidence Regarding PCE Use and Discharges from Dry Cleaning Operations

The evidence in the *City of Modesto* litigation establishes that, during the relevant timeframe, the sources of discharges at dry cleaners included routine drips, leaks and spills as a result of ordinary dry cleaning operations. Discharges occurred on permeable concrete; leaks, drips and spills occurred during deliveries; wastes were discharged to sewers that leaked; and wastes were even intentionally placed on the ground during this timeframe, as instructed by solvent manufacturers' material safety data sheets (MSDS). Testimony from the *City of Modesto* witnesses establishes that these discharges were visible or apparent, and the source of discharges is widely documented in public literature. The following evidence, largely from the *City of Modesto* litigation,[4] corroborates that Fox knew or should have known of the use of PCE and associated risks of discharges at the Site.

2.2.1 PCE Was Commonly Used in Dry Cleaning

1) "Although perchloroethylene was first promoted for dry cleaning in 1933, its use in this field accelerated most rapidly only after 1945 and dry cleaning now [in 1971] represents the chief outlet." (Exhibit 363 at p. 1.)

2) "Perchloroethylene saw significant growth, 10.9% per year, in the 1960's as it became the preferred solvent for dry cleaning." (Exhibit 4 at p. DCMOD11462.)

3) "Growth of perc in the 1960's was rapid due to the expansion of dry cleaning into areas which, due to fire codes, had to use perc. In addition, perc replaced flammable petroleum cleaning solvents in many older plants." (Exhibit 21 at p. DCMOD11111.)

2.2.2 PCE is a Hazardous Substance

1) The 1948 Manufacturing Chemists Association's Chemical Safety Data Sheet (CSDS) noted: "Perchloroethylene is toxic." (Exhibit 14 at p. DCMOD11492, *et seq*.) The CSDS listed numerous toxic effects and health hazards associated with PCE.

2) The Dow Chemical (Dow) literature since at least the 1960's noted that PCE was a particularly hazardous compound and an undesirable pollutant which should not be discharged into sewer systems. (Exhibit 22 and Alexander depo. pp. 12-13.)

3) "The general hazards associated with … chlorinated hydrocarbons are flammability, toxicity, and corrosiveness." (Exhibit 197 at p. KX 00973.)

4) Dow's 1978 *Spot News* acknowledged that a new classification under Resource Conservation Recovery Act (RCRA) would classify "still bottoms and contaminated

[4] Evidence marked with an Exhibit number or referenced as a deposition is from the *City of Modesto* litigation. Due to the voluminous nature of this evidence, these are not attached here, but maintained in Lahontan Water Board files and available upon request.

solvents, which are expected to be classified as hazardous." (Exhibit 3 at p. DCMOD02162. See also Mary McLemore depo., at pp. 25-27 [efforts to classify perchloroethylene as a cancer-producing material] and 30-34.)

5) An article regarding tri- and perchloroethylene noted that "As a rule most of the solvent is recovered by distillation but a certain amount remains in the distillation residues and if such residues or other wastewaters containing the solvents reach the sewers, they settle with sludge, and vapours are released when the sludge is disturbed… The solvents may also damage the sewers, especially by softening and dissolving asphalt coatings and joints" (Exhibit 189 at p. 171.)

2.2.3 Dry Cleaning Equipment Was Known to Leak

Dry cleaner publications circulated by PPG Industries, Inc. (PPG) in 1974, stated that PCE losses may occur from the following dry cleaning equipment:

1) **Loading Door** *"*gaskets tend become brittle with consequent solvent leaks.*"* (Exhibit 404 at p. PPGMOD00615).

2) **Unions and Couplings** *"*Vibrations and expansions/contraction due to temperature change can quickly loosen unions and couplings. A leak of only one drop per second can add up to over a gallon of perchlor in a twenty-four hour period." (Exhibit 404 at p. PPGMOD00615.)

3) **Filter Sludge** "Simple draining of filter sludges is not enough to prevent solvent losses. Even after twenty-four hours of draining, filter sludges can still contain as much as 75% perchloroethylene." (Exhibit 404 at p. PPGMOD00615.)

4) **Pumps** *"*leaks can be drastic*"* when pumps *"*malfunction*"* and are not properly sealed (Exhibit 404 at p. PPGMOD00616.)

A 1970 PPG *Solvents News* publication identified the following sources of dry cleaning equipment leaks:

1) **Machine Door** "The gaskets should be examined closely for breaks, brittleness … (They wear out more frequently than many people realize.) Leaking gaskets can be expensive in terms of solvent waste." (Exhibit 26 at p. PPGMOD00625.)

2) **Unions and Couplings** "Unions and couplings are a common source of solvent waste because of their tendency to loosen due to motor vibration and the expansion and contraction resulting from sudden temperature changes." (Exhibit 26 at p. PPGMOD00625.)

3) **Valve Stems** "Valve packing fails from time to time. Each valve stem and connection should be checked periodically to prevent leakage from these points." (Exhibit 26 at p. PPGMOD00625.)

Dow's 1958 *Spot News* publication identified numerous sources of leaks in equipment, including leaking unions and couplings, leaking valves, leaking pump, leaks in sump and storage tanks, water separator, leaking couplings, and sloppy transfer of PCE from the drum. (Exhibit 13 and Dow Exhibit 110A.) The 1958 *Spot News* specifically identified the following sources of leaks:

1) "We find, however, that the average dry cleaner never thinks of keeping a spare gasket for this door on hand. He will wait until the gasket is completely ruined, and solvent is running down the front of the machine before he even orders one." (Exhibit 13 at p. DCMOD04601A.)

2) "Unions and couplings on lines can be tight one week and losing solvent the next week. Vibration from the machine, or expansion and contraction from heat or cold, will occasionally cause these joins to loosen. It is very possible for a slow leak to develop, and solvent can actually be dripping to the floor…." (Exhibit 13 at p. DCMOD04601A.)

3) "The solvent in the filter is under pressure and a little carelessness here can cause appreciable losses." (Exhibit 13 at p. DCMOD04602A.)

4) With respect to pumps, "the perchloroethylene is under pressure and will leak through the smallest gasket imperfection." (Exhibit 13 at p. DCMOD04602A.)

5) "A sump tank or storage tank, after it has been in service for a long time, can conceivably develop some very slow leaks that will be hard to detect." … "A pin hole leak may go for a long time before being discovered." (Exhibit 13 at p. DCMOD04603A.)

2.2.4 Insubstantial Leaks Were Known to Cause Significant Discharges

Publicly-available documentation indicated that seemingly minor leaks led to significant discharges and were anticipated as part of dry cleaning activities:

1) "Even if solvent drips from only one area at the rate of one drop a second, the loss can add up to as much as half a gallon of solvent in an eight hour operating day." (Dow, 1973, Exhibit 88 at p. DCMOD01929 [Dow, 1973 *Spot News*].)

2) In 1978, US EPA described the "presumptive norm" related to "existing perchloroethylene dry cleaning systems," including information relevant to coin-operated dry cleaning facilities. (United States Environmental Protection Agency (US EPA, 1978 at pp. 1-1 and 2-1.) "There are two types of losses from both point and fugitive emission sources – liquid and vapor. Liquid losses can be detected by sight – the brown residue associated with a solvent leak is familiar to any operator. One solvent manufacturing company [footnote omitted] estimates that a leak of one drip per second equates to as much as four litres of solvent per day." (*Id.* at p. 3-6.)

3) "If one drop of PCE forms at a leak point in dry cleaning equipment every two seconds and drops into a gallon container, that container will be at least half full at the end of a twenty-four hour period. This means that nearly seven pounds of perchloroethylene has been lost from one small leak! Still more will have evaporated on the way to the container. The more leaks you have, the more solvent you lose; the faster the leak, the faster the loss." (Exhibit 93 at p. PPGMOD00415 [PPG Cleaner Cleaner Bulletin].)

4) A 1974 PPG Bulletin, "Operating tips for better dry cleaning," established that perc losses from dry cleaning equipment are most likely to occur as follows: (1) gaskets become brittle with perc leaks; (2) vibrations and expansions/contraction due to temperature change in the dry cleaning equipment quickly loosen unions and couplings, causing leak. (Exhibit 404 at p. PPGMOD00615 - PPGMOD00616.)

5) Notably, the State Water Board has indicated that liability is appropriate in similar circumstances of "small" discharges of solvents: "As we noted earlier, given the very low action levels for these chemicals, today we are concerned with any discharge." (State Water Board Order No. 86-16, (*Stinnes-Western*) at n.4). In this case, even small spills of PCE led to high concentrations in the subsurface.

6) "Concentrations of the chlorinated solvents in ground water vary quite widely. Background levels are measures in the low part-per-billion range, while contaminated water may contain higher concentrations. These higher concentrations were generally caused by past spillage or indiscriminate waste disposal, sometimes over a period of many years." (Exhibit 12 at p. OCC-MO 0006007.)

2.2.5 Dry Cleaners Disposed of Separator Wastewater Down Drains or on the Ground

The following evidence (witness testimony, equipment manuals, dry cleaning publications) documents that it was common knowledge that dry cleaners in the relevant timeframe disposed of separator wastewater down drains or on the ground:

1) Dry cleaners in the 1960s, 1970s, and 1980s were advised to dispose of separator wastewater into sewers and such disposal was a common practice in that timeframe. (Beard depo., at pp. 11, 12, 13, 14; and 91.)

2) Dow published *Spot News*, a newsletter providing technical and safety advice, which Dow intended to be distributed directly to retail dry cleaners. (Mary McLemore depo., at p. 18.) "*Spot News* is a publication that we (Dow) use to communicate to drycleaners." (Hickman depo., September 18, 2002, at p. 10.)

3) Dow's 1958 *Spot News* advised dry cleaners that "[i]f the separator is to function properly, a free unimpeded water flow to the drain is also necessary" (Exhibit 13 at p. DCMOD4602A.).

4) It was common knowledge that water from the separator often contained PCE because Dow's 1958 *Spot News* advised dry cleaners to avoid back pressure in the line used to reclaim solvent from the separator. (Exhibit 13 at p. DCMOD4603A). Otherwise, it is possible "to actually back the solvent up to the point where it would be discharged through the water overflow and into your drain." (*Ibid*. See also Mary McLemore depo., at p 21.).

5) The Dow 1978 *Spot News* states that [Groundwater] "contamination occurred over the years as a result of previously acceptable practices of solvent disposal, loosely called 'dumping' or 'back lot burial." (Exhibit 3 at p. DCMOD02162.)

6) The May 1970 PPG *Solvents News* advised dry cleaners, "For optimum efficiency, the water in the separator ought to have easy access to a drain." (Exhibit 26 at p. PPGMOD00625.)

7) The 1970 PPG *Solvents News* noted that this direct connection with the sewer can cause solvent discharges: "Recovered solvent should be transferred directly into a storage tank, not into an open vessel. It is essential that no back pressure develop in this container. Such pressure can cause solvent to back up, discharge through the water overflow and into the sewer." (Exhibit 26 at p. PPGMOD00626.)

8) The PPG Cleaner Cleaner Bulletin 9 stated "A plugged solvent line will cause solvent to flow through the water outlet to the sewer…." (Exhibit 28 at p. D00577.)

9) A 1965 Class 2143 Martin Perclor-Saver Tumbler instruction manual advised dry cleaners: "A flexible hose for water drainage is furnished … and is arranged to discharge into a pail or open sewer." (Exhibit 48 at p. TE008818 and Exhibit 49 at p. WC20928.)

10) R.R. Street's installation instructions for the Puritan 4000-SRS Solvent Recovery System advised dry cleaners to "install ½" pipe from waste water outlet of the water separator downward so that waste water may be caught in a pail or other suitable container." (Exhibit 102 at p. 3.)

11) Dow's Summer 1973 *Spot New* stated *"*The lines … which lead to and from the separator are generally quite small in diameter and can be easily plugged with rust or lint… solvent is lost via the water outlet" (Exhibit 88 at p. DCMOD01930.)

12) As late as 1982, the International Fabricare Institute (IFI) provided information to dry cleaners *acknowledging* discharges in standard operations of their equipment:

    a. "Take an average size perc plant, doing about 1,500 pounds of cleaning per week. If this plant has water separators on their recovery unit and still or cooker – but has no vapor adsorber – that plant will discharge approximately 0.7 of a fluid ounce of perc per year in separator water." (Exhibit 31 at p. RRS2 8741.)

b. "If the same plant also has a vapor adsorber, the average total discharge will be about 6 fluid ounces of perc per year in separator water – about one-twentieth of a gallon." (Exhibit 31 at p. RRS2 8741.)

13) Disposal into sewers continued even after the passage of hazardous waste disposal laws in the 1980s. A 1990 IFI Bulletin stated that "The majority of drycleaning plants dispose of separator water to sanitary sewer systems. Other plants discharge water to septic systems, and in a few cases, directly outside… With either sanitary or septic systems, blockage of the perc outlet from a water separator can go virtually unnoticed. Large quantities of perc are then sent directly down the drain." (Exhibit 277 at p. RRS 012964.)

2.2.6 Dry Cleaners Were Instructed to Bury Discharges or Allow Them to Evaporate on the Ground

The following evidence (publications from two of the major PCE dry cleaning solvent manufacturers), from during or preceding the relevant timeframe, documents that it was common knowledge that PCE spills routinely occurred and waste was discharged on the ground:

1) Dow intended the MSDS to provide its customers with information about the proper disposal of its products, including disposal of perchloroethylene by dry cleaners (Dombrowski depo., April 16, 2002, at pp. 86-87 and Hickman depo., September 18, 2002, at pp. 10-11].)

2) Dow's 1971 MSDS instructed dry cleaners to deal with "small spills" by "mop[ping] up, wip[ing] up, or soak[ing] up with absorbent material using proper protective equipment. Bury." The Disposal Method was "Bury away from water supply or allow solvent to evaporate to atmosphere at a safe distance from inhabited buildings." (Exhibit 54 at p. DCMOD00389.)

3) Dow's 1973 (Exhibit 55 at p. DCMOD00390), 1975 (Exhibit 16 at p. DCMOD01045), 1976 (Exhibit 17 at p. DCMOD00394 and Exhibit 18 at p. DCMOD01047), and 1977 (Exhibit 19 at p. VWR0235-VWR0236) MSDSs advised dry cleaners that "[i]n some cases it (PCE) can be transported to an area where it can be placed on the ground..."

4) Dow's 1979 MSDS still instructed retail dry cleaners (under the section on "waste disposal") that small amounts of spilled perc "may be transported to an area where it can be placed on the ground and allowed to evaporate safely." (Exhibit 57 at p. DCMOD00414.)

5) Dow MSDSs from 1973-1979 all referred to CSDS SD-24 of the Manufacturing Chemists' Association. The 1948 (Exhibit 14 at p. DCMOD11495) and 1971 (Exhibit 15 at p. DCMOD11514) CSDS for PCE from the Manufacturing Chemists' Association, Inc. (SD-24) advised that "Rags or mops wet with perchloroethylene

should be placed in closed containers or in a safe place out of doors until they can be dried safely."

6) PPG's 1971 (Exhibit 24 at p. PPG0053) and 1977 (Exhibit 25 at. p. PPG0055) MSDSs for PCE advised dry cleaners to evaporate small quantities "in remote area" or in response to spills, "Collect spilled material on sawdust or vermiculite and sweep into closed containers for disposal. Then flush area with plenty of water…."

7) Consistent with these MSDS instructions and known PCE disposal, spill response, and handling practices at the time the dry cleaner was in operation at the Site and detection of PCE in shallow soil (Figure 6)[5] at Site, it is likely spent PCE was buried at the Site or allowed to evaporate on the ground.

2.2.7 Dry Cleaners Disposed of PCE Waste on the Ground or in the Trash

The following evidence documents that it was common knowledge that dry cleaners in the relevant timeframe disposed of PCE waste on the ground or in the trash:

1) Dow's 1978 *Spot News* acknowledged that "residual solvent...can be potentially lost in filter muck and still bottom waste." (Exhibit 3 at p. DCMOD02162.)

2) A national dry cleaner publication, *National Clothesline*, dated 1988 had an ad stating, "Slam dunk in the Dumpster: Throw cartridges in the trash." (Exhibit 46 at p. VICDAL03246.)

3) *The Study of Potential for Groundwater Contamination from Past Dry Cleaner Operations in Santa Clara County* stated "In the past, undrained spent filter cartridges were collected and stored outside the dry cleaner's service door. PCE drained directly to the ground or the pavement." (Mohr, 2007 at p. 23.) Each filter cartridge can contain up to 1 gallon of PCE (Mohr, 2007 at p. 23.)

4) Thomas Opsahl's, an employee with R.R. Street since 1967 (Opsahl depo., at p. 9), was the manager of technical field services (a position that involves assisting and communicating with sales representatives) and testified that:

    a. Separator wastewater contained up to 150 parts per million (ppm) of PCE was routinely dumped into drains by dry cleaners (Opsahl depo., at pp. 107-109.)

    b. Dry cleaner filter cartridges containing PCE were disposed of in dumpsters (Opsahl depo., at pp. 110-112.)

    c. Waste generated by stills created a muck which contained PCE that was routinely thrown into dumpsters (Opsahl depo., pp. at 112-113.)

[5] Figure 6 shows the areal extent of soil contamination reported at and above 4 feet bgs in 2004 and 2005.

d. Mr. Opsahl learned that PCE had been found in drinking water produced by wells. All R.R. Street sales representatives were informed in October 1983 that perchloroethylene was found in water produced by wells in Bedford, New York (Opsahl depo., at pp. 49-50).

e. Mr. Opsahl was then asked:

> Q. When you first learned that perc was found in drinking water, did you have any understanding of how it may have gotten there in view of the practices you observed at dry cleaners you visited? [Objections.]
>
> A. My explanation was **obviously somehow it went down the drain and went down the sewer lines, or wherever it went, and ended up in the ground, going through the ground in whatever passages it takes through the ground into a well**.
>
> Q. A matter of common sense? [Objections.]
>
> A. **Common sense, logic. I mean, what more do you want me to say on that?**..." (Opsahl depo., at pp. 117-118.)

5) A 1974 PPG advertisement bore the title, "How much of your solvent is going out the back door?" The ad went on to note that "Good usable solvent … is being thrown out with filter sludge and still residues… More solvent could be going … [d]own the drain due to poor reclamation." (Exhibit 27 at PPGMOD00585.)

2.2.8 Ordinary Dry Cleaning Practices Led to Discharges

Site investigators determined that spills/discharges associated with PCE delivery, handling, and disposal practices are the likely sources of waste discharge at the Site. The following witness testimony and evidence from the PCE manufacturers from the *City of Modesto* litigation supports the conclusion that it was common knowledge that discharges occurred from ordinary dry cleaning operations in the relevant timeframe.

2.2.8.1 Nance Testimony

1) John Nance was in the dry cleaning business from approximately 1946-1984. (Nance depo., at pp.18, 70, and 179.)

2) He testified that while he was in the dry cleaning business, it was common practice in the industry to dispose of separator wastewater in the sewer. (Nance depo., at p.46.)

2.2.8.2 Caulk Testimony

1) Lyman Caulk has worked in the dry cleaning industry since approximately 1945. (Caulk depo., at pp.18, 35, 38, 52, and 53.)

2) Lyman Caulk testified regarding his website, a page of which is devoted to problems in the field of dry cleaning. (Caulk depo., pp. 176 and 177.)

3) His testimony was based upon physically going into many dry cleaning stores. (Caulk depo., at p. 178.)

4) Lyman Caulk testified that **perc spills or leaks occur at the gaskets and seals of dry cleaning machines because** "perc will penetrate that." (Caulk depo., at p. 193.)

5) He further testified that changes in temperature, when solvent is heated in the dry cleaning process, the "gasket materials ... absorb more. And if you don't go around and torque them, tighten them up, ... **you have a tendency for perc to drip.**" (Caulk depo., at p.196.)

2.2.8.3 Ramirez Testimony

1) Gus Ramirez worked in the dry cleaning business between 1968 and 1989. (Ramirez depo., December 3, 2002, at p. 61.)

2) He testified that during this time, **it was "common practice" at the cleaners he worked at and other cleaners to dispose of muck or diatomaceous earth in the trash**. (Ramirez depo., December 4, 2002, at p. 386.)

3) Gus Ramirez testified that a **hose ruptured** on the dry cleaning equipment at One Hour Martinizing **as a result of vibration** from the machine causing a crack on the hose, resulting in a spill. (Ramirez depo., December 4, 2002, at pp. 365-366.)

4) He further testified that vibration is generated by dry cleaning equipment **as a result of its normal operation and use.** (Ramirez depo., December 4, 2002, at p. 367.)

2.2.8.4 Bakker Testimony

1) Pete Bakker has worked in the dry cleaning industry since 1965 (Bakker depo., at p. 21) and was "raised in the dry-cleaning business." (*Id*. at pp.16-17.)

2) He further testified that he was "aware of the **practice of dry cleaners to route wastewater down the drain as their disposal method."** (Bakker depo., at pp.17-18.)

2.2.8.5 Wooten Testimony

1) Bobbie Wooten owned Crossroads Cleaners from 1972 to 1985. (Wooten depo., at p. 10.)

2) He testified that it was his understanding "that it was the **practice in the dry cleaning industry to drain perc wastewater into the sewer** during the time that that occurred at Crossroads Cleaners." (Wooten depo., at p. 56.)

3) He testified that PCE was transferred by a hose from a delivery truck to a 55-gallon storage drum located in the store. (Wooten depo., at pp. 66-67.)

4) He testified that he observed a spill that occurred at the metering end of PCE delivery truck that resulted in a release of PCE to the ground. (Wooten depo., at p. 76.)

2.2.8.6 Suggett Testimony

1) Bill Suggett started working in the dry cleaning industry sometime in the mid 1960s. (Suggett depo., at p.17.)

2) His occupation has entailed owning dry cleaners and installing dry cleaning equipment for dry cleaners. (Suggett depo., at p. 57.)

3) Mr. Suggett testified as follows:

   a. "Q. What was your understanding that dry cleaners did with regard to disposing of perc waste before new regulations came into effect? [Objections.]

   b. THE WITNESS: Well, because of the expenses involved, perchlor is expensive, and **all the waste** that went out was dried as thoroughly as could be, and normally they went in, perfectly legally, into **the dumpster** or wherever for the disposal people to take away, the trash people." (Suggett depo., at p.42.)

4) He further testified as follows:

   a. "Q. Are you aware of there being an issue today of the potential to contaminate soil or groundwater through dry cleaner operations? ...

   b. THE WITNESS: Well, you have to understand, as a layman, that perchloroethylene has been used by the Armed Services, it's been used in garages, it's been used in printers ink and **everybody pitched it out the back door**. So I you know, it's only recently that it's come down to be so closely controlled, and prior to that time, when somebody go through it with, it didn't matter what kind of business you had, you pitched it out the back door." (Suggett depo., at p. 36.)

2.2.8.7 Landon Testimony

1) Steven Landon, President of Washex (Landon depo., at p. 17), testified that dry cleaner's waste disposal practices were observable:

a. "Q: And is that your basis for believing that Dow Chemical had knowledge that separator wastewater was being disposed of into a bucket and then into a drain?

b. A: Well, **this was industry practice. If they ever went into a dry cleaning plant, they saw it."** (Landon depo., at pp. 155-156.)

2.2.9 PCE Manufacturer Evidence of Routine Operations Causing Contamination

1) The Dow's 1978 *Spot News* admitted that **"[c]ontamination occurred over the years as a result of previously acceptable practices of solvent disposal, loosely called 'dumping' or 'back lot burial.'"** (Exhibit 3 at p. DCMOD02162 and Mary McLemore depo., at pp. 39-40.)

2) Dow admitted that if a dry cleaner had a concrete floor without a coating, the dry cleaner "They'll have less time to clean up a spill [of perc], more chance for perc to go through a crack or through the concrete." (Hickman depo., September 18, 2002, at pp. 104-105.)

2.3 Risks of Groundwater Contamination from Chemical Disposal on the Ground or in Sewers Were Well Known in the Relevant Timeframe

Knowledge of the risks of contamination from chemicals disposed of on the ground or into sewers predated operations at the Site by decades or even centuries.

Professor Craig Colten specializes in the progression of knowledge of developments in groundwater hydrology and documented early knowledge of the connection between industrial practices and groundwater contamination. His 1991 article, *A Historical Perspective on Industrial Wastes and Groundwater Contamination* describes nineteenth century literature, in both Europe and the United States, demonstrating the known scientific processes connecting surface water contamination and groundwater contamination, including concepts of pressure, flow and medium, permeability and transmissivity. (Craig E. Colten, *A Historical Perspective on Industrial Wastes and Groundwater Contamination,* 81 Geographical Review No. 2 (April 1991) (*Historical Perspectives*), at pp. 216-218.) In short, the concept that pollutants discharged on the surface could migrate to groundwater was appreciated decades or even centuries before operations at the Site. In another article, Professor Colten establishes that "public policy addressed groundwater at the level of common law, statutory law, and agency regulation by the first decade of the century." (Craig E. Colten, *Groundwater and the Law: Records v. Recollections*, 20 The Public Historian 2 (Spring 1998), at p. 34.)

> The earliest ground water contaminant recognized by scientists was human sewage (for a historical perspective, see Mallman and Mack, 1961). In 1854, a London doctor linked a cholera epidemic to contamination of drinking water supplies—including a neighborhood water well—with sewage. In Switzerland in 1872, a typhoid epidemic was traced to sewage contamination in a river that recharged a town's ground water supply. In 1909, two German researchers ran a

> series of controlled tests to investigate bacterial migration underground and established that bacteria could travel with ground water from one well to another.
>
> As chemical use increased after World War II, isolated reports of chemical contamination of ground water appeared. In 1947, for example, hexavalent chromium from electroplating wastes was discovered in a Michigan ground water supply after homeowners complained that their water had turned yellow (Deutsch, 1961). Relatively common after the war were complaints of foaming ground water—from contamination with the surfactant alkyl benzene sulfonate that had leaked from septic systems. Recognizing the increasing potential for chemical contamination of ground water, the American Water Works Association created a task force of scientists, the Task Group on Underground Waste Disposal and Control, to study the problem in the early 1950s. (National Academies Press, *Alternatives for Groundwater Cleanup* (1994), pp. 23-24.)

The need for controlling waste discharges was acknowledged almost a hundred years ago:

> Both [government and industry] promoted and sought solutions to waste disposal problems from an early date. Manufacturers moved slowly to adopt existing technology to minimize recognized liabilities, while outwardly proclaiming the problem was under control. Before 1930 a deliberate course of action was understandable given existing volumes of hazardous wastes and manufacturers' ability to find isolated sites and thereby avoid creating a public nuisance. Between 1930 and 1948, industry took a clearly articulated position, but failed to provide waste treatment in accord with its pronouncements and its ability.

(Craig E. Colten, *Creating a Toxic Landscape: Chemical Waste Disposal Policy and Practice, 1900-1960*, 18 Environmental History Review 1 (*Creating a Toxic Landscape*), at p. 86.)

A review of the of the scientific literature on the motion of subsurface fluids, and sanitary engineering indicates that by 1940 knowledge was sufficient to argue against surface discharges of harmful fluids. (*Ibid.*)

In response to groundwater pollution incidents, in the 1940s, California officials discussed the need for legislation pertaining directly to groundwater, recognizing the importance of groundwater for domestic supplies and "the fact that Californians 'lived on the roof of our reservoir.'" (Craig E. Colten, *Groundwater and the Law: Records v. Recollections*, 20 The Public Historian 2, at p. 35.)

A 1942 article in the Sewage Works Journal recognized the prevalence of sewage pollution tied to industrial establishments, and noted the connection of industries to tainted public water supplies, "impart[ing] to them chemical constituents, difficult if not impossible to remove by known and practical methods of water treatment." (Milton Adams, et al., *Industrial Wastes, the Law and Pollution Control Programs*, 14 Sewage Works Journal 3 (May 1942), pp. 653-665.)

"By the late 1940s, hydrologists, geochemists, public health officials, and industrial waste management experts all were familiar with harmful consequences of toxic effluents." (*Creating a Toxic Landscape*, p. 104.) Water consumers and waste disposers all recognized that chemical wastes could travel substantial distances with the general groundwater flow without significant dilution or degradation. (*Id.* at p. 105.)

"[D]uring the 1940's, 1950's and 1960's, segments of the scientific and technical communities … were cognizant of toxic properties of industrial waste, reached a consensus about the link between the degradation of groundwater and land-based hazardous waste disposal, and issued strong advisories about threats to soil and groundwater." (Halina Szejnwald Brown et al., *Reassessing the History of U.S. Hazardous Waste Disposal Policy – Problem Definition, Expert Knowledge and Agenda-Setting* (June 1997). See also *id.* at pp. 252-259 [The Body of Knowledge about Industrial Waste Disposal].)

The risk of groundwater contamination was well known in the 1960s and 1970s, receiving widespread public recognition in the popular press as a result of Rachel Carson's 1962 work *Silent Spring* and incidents like the Love Canal case, in which President Carter declared an emergency in Niagara Falls, New York, relating to risks to human health linked to groundwater contamination.

Some would argue, based upon the passage of significant environmental legislation in the 1970s, that the impacts of industrial chemical use was unknown prior to that timeframe. Professor Craig Colten debunks this notion in his article *Groundwater and the Law: Records v. Recollections*:

> Far from being newly discovered in the 1970s, groundwater pollution and the need to protect groundwater were well-established concerns in the public health, sanitary engineering, and industrial communities. Several developments during the 1940s and 1960s fostered additional attention to this topic … Numerous groundwater pollution incidents during the 1940s and 1950s directed public agency attention to finding and abating the contaminant sources. (Craig E. Colten, *Groundwater and the Law: Records v. Recollections*, 20 The Public Historian 2, pp. 25-44, a p. 31.)

2.4 Site Specific Dry Cleaner Operations, Including PCE Deliveries and Transfers, Posed Potential for Groundwater Contamination

Mary Louise Baisley (former operator at the Site starting in 1976) testified in her deposition in the Seven Springs litigation that PCE was delivered to the Site via truck delivery in front of store and filling of a drum by an accordion-type hose. (Baisley, depo., April 13, 2007, at AR11379-AR11380.) Testimony further describes the drum location and solvent transfer process, indicating a hand pump was used to transfer solvent between the drum and dry cleaning equipment. (Baisley, depo., April 13, 2007, AR11367-AR11371.)

The highest concentrations of PCE on the Site in soil, soil gas, and groundwater are located in the delivery truck parking area (i.e., northern parking lot area) and around stormwater conveyance inlets (i.e., area where surface spill would naturally flow) and PCE is also present beneath the concrete slab, indicating that discharges occurred in the solvent transfer processes (Figure 6 and Figure 9)[6]. Detections of PCE in soil extended from the front entrance approximately 80 feet northwest, 80 feet north, and 80 feet northeast into the northern parking area. The detection of these maximum PCE concentrations in an area identified by the Dischargers as the primary staging area for solvent delivery and removal directly links a portion of the PCE contamination detected on-Site to discharges that occurred during solvent delivery, handling, and removal.

The data are consistent with evidence described above regarding the prevalence of PCE in dry cleaning, the routine nature of spills during operations, including deliveries and transfers of PCE from trucks to storage to dry cleaning machines. Spills/discharges are commonly associated with solvent delivery and handling, especially when it involves hose delivery of the solvent to the facility via tanker truck. Those discharges would have been observable to any bystander.

2.5 Fox's Own Leases Establish Fox's Control

As discussed above, the relevant leases in this case allowed for right of entry. The leases establish that the landlords had the ability to inspect, knew the premises were used for dry cleaning and required compliance with the laws:

Relevant portions of the May 24, 1972 lease between Prupas and Connolly include:

1) Section 7 "Use of Premises"- "dry cleaning and coin-operated laundry and purposes related thereto." (Baisley, depo., April 13, 2007, at AR11460.)

2) Section 7.5 "Compliance with Laws" (Baisley, depo., April 13, 2007, at AR11460.)

3) Section 15 "Right of Entry" clause (Baisley, depo., April 13, 2007, at AR11462.)

Subsequent subleases (Hakkansson Oct 72) and reassignment of sublease (Hakansson to Baisley) indicated original lease terms remained operable. (Baisley, depo., April 13, 2007, at AR011474.)

The evidence establishes that Fox knew that dry cleaning occurred on the Site and gave Fox the right to inspect, enter and control the property. Fox also had the ability to terminate the lease in the event of violations of the law. Discharges causing impacts to

[6] Figure 6 and Figure 9 displays the areal extent of soil analytical results from historical investigations conducted at the Site between 2004 and 2005.
Figure 6 identifies soil sample locations where PCE was detected at and above 4 feet bgs.
Figure 9 identifies soil sample locations with PCE concentrations above leaching to groundwater ESL. The distribution of PCE concentrations in soil indicates unauthorized releases occurred beneath the tenant space and in the northern parking lot delivery area near stormwater conveyance system drop inlet in the northwest portion of the property.

groundwater have been prohibited since at least 1872. Water Code Section 13304 does not limit liability for acts that were in violation of existing laws or regulations, even if they occurred before 1981. Since 1872, California law has prohibited the creation of a public nuisance. In 1925, water pollution was held by the courts to be a public nuisance. And since 1949, California law has expressly prohibited any discharge of waste in a manner which results in pollution, contamination, or nuisance. Additionally, the Porter–Cologne Water Quality Act of 1969 defined nuisance and authorized regional water boards to order cleanup. The definition included anything that: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and (3) occurs during or as a result of the treatment of wastes. Discharges of hazardous waste polluting groundwater meet the definition of a nuisance under the 1969 law, impacting or threatening to impact groundwater, and adversely impacting an entire community. (See *Newhall Land & Farming Co. v. Superior Court* (1993) 19 Cal.App.4th 334, 341 [Pollution of water constitutes a public nuisance; water pollution occurring as a result of discharges of wastes is a public nuisance per se] [citations omitted]. See also *San Diego Unified Port District v. Monsanto Company* (S.D. Cal., Mar. 26, 2020, No. 15-CV-578-WQH-AGS) 2020 WL 1479071, at *8 [same].)

2.6 Local Ordinances in South Lake Tahoe

In addition, numerous ordinances existed at the time of dry cleaning operations at the Site, that evidence the common knowledge that industrial wastes, such as separator wastewater or cooling water from dry cleaning stills, could contain dangerous substances, requiring restrictions:

2.6.1 South Tahoe Public Utility District

As far back as 1956, the South Tahoe Public Utility District (the District) Ordinances contained the following prohibitions:

1) Ordinance No. 24, § 7.1 “No … cooling water or unpolluted industrial process wastes shall be permitted to enter any sanitary sewer by any device or method whatsoever.” (District, 1955 at p. 8.)

2) Ordinance No. 24, § 7.2 “[N]o person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

    a. (g) Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to … constitute a hazard to human or animals, or create any hazard in the receiving waters of the sewage treatment plant.

    b. (i) Any … substance capable of creating a public nuisance.” (District, 1955 at p. 9)

2.6.2 City of South Lake Tahoe

1) 1966-050 Procedures for Nuisance Abatement:

    a. Ordinance No. 50, § 7-1-2 Nuisances affecting Health – the following are hereby declared to be nuisances affecting health: (g) "the pollution of any public or private well or cistern, stream, lake, canal or body of water by sewage, creamery, or industrials wastes or other substances." (City of South Lake Tahoe, 1966 at pp. 1-2.)

2) 1970-249 Service and Planned Industrial Processes:

    a. Ordinance No. 249, Sec. 32-19.2 (9) Performance standards for "Liquid or solid wastes- No discharge at any point of any material of such nature or temperature as can contaminate any water supply….or otherwise cause the emission of dangerous or offensive elements, shall be permitted." City of South Lake Tahoe, 1970 at p. 8.)

2.7 Fox Is Appropriately Identified as Discharger

As a final point, Water Code section 13304 requires only evidence of "knowledge of the risk of a discharge on the part of a prior owner named in a cleanup order;" there is *no* requirement of evidence "that the prior owner knew or should have known of a specific discharge or dangerous condition." (*United Artists*, *supra*, 42 Cal.App.5th at 869.) The evidence overwhelmingly supports the conclusion that Fox knew or should have known of the risk of a discharge from dry cleaning operations at the Site.

3 SUMMARY OF KEY INFORMATION SUPPORTING ORDER REQUIREMENTS

3.1 Conceptual Site Model

A Conceptual Site Model (CSM) for the Site provides a comprehensive description of PCE (including PCE degradation compounds) discharge scenario(s), regional PCE plume geology and hydrogeology, on-Site and off-Site preferential pathways (e.g., stormwater conveyance system, sanitary sewer, other subsurface utilities), potential vertical conduits (e.g., water supply wells and monitoring wells), distribution of wastes in soil, soil vapor, and groundwater, exposure pathways associated with the regional PCE plume, sensitive receptors (i.e., schools, day cares, nursing homes, etc.) and water supply wells. It is intended to function as a roadmap that identifies the nature and extent of PCE in soil, soil vapor, and groundwater originating from the Site contributing to the regional PCE plume and potential and known impacts of contamination to human and ecological receptors

Proper Site characterization is necessary because an incomplete CSM leads to an incomplete understanding of the Site and may result in developing and implementing remedial solutions that are not effective. Despite numerous orders requiring the delineation of the lateral and vertical extent of PCE in soil, soil gas, and groundwater originating from the Site, the extent of contamination has never been determined by the Dischargers.

The Dischargers' current CSM is flawed and not supported by the available data. The CSM needs to be updated to acknowledge the following:

1) Off-Site migration of PCE contamination has occurred in the past and is still occurring.

2) Although there may be additional PCE sources contributing to the regional PCE plume, the regional PCE plume originates at the Site (the Dischargers could not identify any sources upgradient of the Site) and continues without interruption to the Tahoe Keys (and potentially beyond),

3) On-Site discharge of PCE has migrated off-Site through groundwater and has impaired and continues to impair the MUN beneficial use of groundwater.

4) PCE contaminant transport from the Site has occurred since the initial release that occurred over 40 years ago and is still occurring despite the operation of the existing air sparging/soil vapor extraction (AS/SVE) system since 2010.

5) The existing AS/SVE system does not remediate the full extent of soil, soil vapor and groundwater contamination currently identified on-Site which has resulted in the discharge of PCE off-Site.

6) An effective vertical barrier to inhibit downward migration of contamination through groundwater does not exist on-Site and there is a hydraulic connection between shallow and middle water bearing zones.

7) The Site unquestionably meets all the Dischargers' PCE source criteria defined in the March 19, 2018 *Amended Groundwater Investigation Work Plan* and is a PCE source contributing to the regional PCE plume.

3.2 Soil

PCE and PCE degradation by-products have been detected in soil at the Site below the water table at concentrations that exceed San Francisco Bay Regional Water Quality Control Board (SF Bay Water Board) leaching to groundwater Environmental Screening Levels (ESL) indicating ongoing threats to human health and the environment and that residual PCE is present and continues to discharge, unabated, into groundwater, impairing the MUN beneficial use. Prior to on-Site remediation, PCE was detected in soil above the leaching to groundwater ESL in the vicinity of the PCE delivery truck parking area with the highest concentrations detected near the Site's western stormwater conveyance system drop inlet (Figure 9) [7] and during on-Site and off-Site dual-zone

[7]Figure 9 shows the location of the stormwater conveyance drop inlet relative to 2004 and 2005 soil analytical results and highlights PCE concentrations above the leaching to groundwater ESL (0.08 mg/kg). During these investigations, the maximum PCE concentration of 12 mg/kg in soil was detected in soil boring SB-8, located adjacent to the Site's western stormwater conveyance drop inlet in the northern parking lot.

groundwater monitoring well installations (Figure 10)[8]. Following on-Site remediation, PCE has been reported above the leaching to groundwater ESL in stormwater conveyance system utility trench backfills (Figure 11)[9].

3.3 Soil Vapor

PCE concentrations in soil vapor exceed the vapor intrusion to indoor air ESL (Figure 12 and Table 1)[10] and additional investigations are required to evaluate the potential human health threats via the vapor intrusion pathway (i.e., to indoor air) from the remaining on-Site source areas (e.g., northern parking lot, dry cleaning unit [DCU] area), off-Site source areas (e.g., Tucker Basin, the City of South Lake Tahoe's stormwater conveyance system's infiltration/detention basin located immediately downstream of the Site) and off-Site shallow groundwater (e.g., the regional PCE plume).

3.4 Groundwater

PCE has been found in groundwater in every downgradient step-out groundwater sample boring advanced from the Site's property boundary to the regional PCE plume. Specifically, groundwater data collected during the SCAP Regional PCE Plume Investigation provided an initial estimate of the regional PCE plume's geometry and showed the Site at the head of one~~a~~ continuous ~~contiguous~~ plume, that extends, without interruption, to the Tahoe Keys to the north and to depths of up to approximately 2040 feet below ground surface (bgs) (Figure 3, Figure 4, and Figure 5, Table 2, Table 3, and Table 4).[11] Groundwater investigations conducted to date have demonstrated:

[8]Figure 10 shows the locations of on-Site and off-Site monitoring well pairs installed in 2008, associated soil analytical results reported during installation activities, and stormwater conveyance drop inlet locations. The maximum PCE concentrations of 410 mg/kg and 532 mg/kg (reported as duplicate results) in soil were detected in soil boring for monitoring well pair LTLW-MW-1S/D, located adjacent to the Site's western stormwater conveyance system drop inlet in the northern parking lot.

[9]Figure 11 shows the location of soil sample PSG-9/SD3, where the leaching to groundwater ESL (0.08 mg/kg) is exceeded in stormwater conveyance system utility backfill.

[10]Figure 12 shows the location of the soil vapor probe monitoring well network. Recent and maximum concentrations of PCE and TCE in soil vapor are shown in annotated tables. PCE concentrations above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL.
Table 1 provides a summary of the soil vapor analytical data collected at the Site. Concentrations above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL.

[11]Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 4 displays the estimated lateral extent of the regional PCE plume and the location of cross section line A-A' that extends from the Site north to Tahoe Keys.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.
Table 2 presents a summary of groundwater analytical data collected from the monitoring well network at the Site.
Figure 3, Figure 4, and Figure 5 were developed by AECOM using Earth Volumetric Studio™(EVS) modeling software utilizing groundwater analytical and lithological data from the various site specific and regional investigations conducted between January 2017 and November 2020.

1) On-Site operations have resulted in PCE contamination of on- and off-Site groundwater (Figure 3, Figure 4, and Figure 5, Table 2, Table 3, and Table 4).[12]

2) PCE contamination in groundwater originating from the Site is detected continuously, without interruption, to the regional PCE plume (Figure 13).[13]

3) Off-Site contaminant migration in groundwater occurred prior to the AS/SVE remediation system operation in 2010 (Figure 14, Figure 15, Figure 16, and Figure 17).[14]

4) Off-Site migration in groundwater occurred in the past under the influence of natural groundwater hydraulic gradients (groundwater flows from higher groundwater elevations to lower groundwater elevations) and maximum drawdowns (lowering of groundwater elevation in the vicinity of a water supply well due to groundwater pumping) created by municipal supply wells (Figure 4, Figure 5, Figure 18, and Figure 19).[15.]

5) Off-Site contaminant migration in groundwater continued despite AS/SVE system operation because the remediation system was only designed to address on-Site vadose zone (unsaturated zone above groundwater) soil and shallow groundwater

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Table 3 presents a summary of groundwater analytical data collected during the SCAP Regional PCE Plume Investigation used in the EVS modeling software.
Table 4 presents a summary of groundwater analytical data from investigations conducted between January 2017 and November 2020 used in the EVS modeling software.
Table 5 presents a summary of lithologic data from investigations conducted between January 2017 and November 2020 used in the EVS modeling software.

[12] Id.

[13] Figure 13 displays the results of the two transects advanced by Dischargers' consultants stepping out from the Site to the regional PCE plume. The initial transect was advanced along Lake Tahoe Boulevard (black squares) and the second transect was advanced along Tucker Avenue (orange dots). No additional transects have been advanced by the Dischargers' consultants stepping out to the north of Tucker Avenue. Also included in the figure are the results of the Dischargers' Self-Directed Additional Source Area Investigation conducted in June/July 2017.

[14] Figure 14 and Figure 15 provide illustration of shallow (Figure 14) and middle zone (Figure 15) groundwater analytical results from investigations conducted from 2001 to 2008 at the Site and nearby sites.
Figure 16 and Figure 17 provide illustration of shallow (Figure 16) and middle zone (Figure 17) groundwater analytical results from on and off-Site monitoring well installations in 2008.

[15] Figure 4 displays the estimated lateral extent of the PCE plume and the location of cross section line A-A' that extends from the Site north to Tahoe Keys.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.
Figure 18 displays the lateral extent of the regional PCE plume relative to the location of municipal supply wells. Historic and recent PCE concentrations reported in the municipal supply wells, the sampling dates, PCE concentration and date when PCE was first detected above the MCL (if applicable), and the well's current operational status are shown in annotated tables.
Figure 19 shows a groundwater contour map for the general area. Municipal supply wells are identified. Generalized regional groundwater flow directions can be inferred from the contours shown (i.e., groundwater flow direction is perpendicular to contours, and flows from higher elevation contours to lower elevation contours).

and does not contain or control the full extent of known contamination (Figure 20 and Figure 15, Figure 21, and Table 6)[16];

6) Off-Site contaminant migration in groundwater continues despite AS/SVE operation (Figure 5 and Figure 22)[17]; and

7) Off-Site contaminant migration in groundwater will not cease until additional remedial technologies are implemented.

8) PCE contamination in groundwater has impaired and continues to impair the MUN beneficial use.

9) PCE contamination originating from the Site in shallow groundwater exceeds the vapor intrusion ESL and poses a threat to human health.

3.5 Preferential Pathways[18]

Preferential pathways investigations have confirmed 1) On-Site discharges of waste to the stormwater conveyance system and sanitary sewer (Figure 7 and Figure 11)[19], and

[16] Figure 20 shows the approximate extent of the soil and shallow groundwater cleanup areas at the Site. Figure 15 shows the estimated extent of PCE contamination in middle zone groundwater for investigations conducted between 2001 and 2008 (i.e., prior to remedial implementation). The known extent of groundwater contamination in middle zone groundwater that was not directly addressed by remedial actions implemented for the soil and shallow groundwater cleanup areas can be inferred from Figure 20 and Figure 15.
Figure 21 shows the location of remediation system components for the soil and shallow groundwater cleanup area at the Site.
Table 6 provides a summary of the AS/SVE remediation system well construction details. Details illustrate the air sparge and soil vapor extraction wells at the Site were installed to a maximum depth 30 feet bgs and not designed to remediate middle or deeper zone groundwater.

[17] Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.
Figure 22 shows the distribution of PCE contamination in shallow and middle zone groundwater within the on- and off-Site monitoring well network installed for the Site. Historic and recent PCE concentrations reported in the on- and off-Site monitoring well network and the sampling dates are shown in annotated tables.

[18] "Preferential pathway" is a term used to define conditions permitting migration of DNAPL, vapor and groundwater, through soil and groundwater at a faster rate than would be expected through naturally occurring, undisturbed soil. Examples include manmade (utility corridors, wells, drainage systems, and building features such as sumps, floor drains, vent pipes, etc.) and non-manmade (bedrock fractures, sand lenses, rodent tunnels, etc.) pathways.

[19] Figure 7 shows the location and magnitude of PCE in soil gas within, and adjacent, to stormwater conveyance and sanitary sewer backfill. The on-Site stormwater conveyance system (including inlet locations), which conveys stormwater to Tucker Basin, is illustrated on the figure. The highest PCE concentrations in soil gas were reported adjacent to the Site's stormwater conveyance system's drop inlet and the stormwater conveyance system's discharge location in Tucker Basin. These locations are annotated on the figure.
Figure 11 shows the location and magnitude of PCE in soil within, and adjacent to, the stormwater conveyance system utility trench backfill, and sanitary sewer utility trench backfill. Detections of PCE in utility trench backfill soil indicates that the unauthorized discharge of waste occurred.

2) off-Site transport of PCE via the stormwater conveyance system to Tucker Basin (Figure 7 and Figure 11)[20].

The Dischargers' investigations conducted to date have not resulted in a complete delineation of the extent and magnitude of PCE contamination within and beyond Tucker Basin. The preferential pathway investigations remain incomplete and do not adequately evaluate the potential threat to human health from waste discharged to the environment via preferential pathways.

3.6 Impacts to Receptors

Supply wells are currently impaired, impacted, or threatened by the regional PCE plume (Figure 18)[21]. Additional evaluation of the potential threat to human health is necessary for certain supply wells and others require immediate mitigation measures (e.g., replacement water or wellhead treatment).

3.7 Additional Source Evaluation

Dischargers have inconsistently applied potential PCE source identification criteria (applying one set of criteria to their Site and a different set of criteria to other potential sources), resulting in an incomplete and inaccurate analysis of potential contributors to the regional PCE plume. The CSM needs to be updated using consistent source identification criteria that is acceptable to the Lahontan Water Board.

~~Dischargers have been unable to identify any additional significant source areas (e.g.,~~ A~~a~~reas with high PCE concentrations in shallow groundwater (e.g., potential source areas) contributing to the regional PCE plume (Figure 13 and Figure 23)[22] were not indicated from data collected following 2017 CAO issuance (i.e., Dischargers' own investigations conducted between 2017 and 2020 and the SCAP Regional PCE Plume Investigation). Lahontan Water Board staff acknowledge that potential additional PCE sources may be contributing PCE mass to the regional PCE plume. The investigation and evaluation of potential additional PCE sources contributing to the regional PCE plume is ongoing, including work currently being performed by other dischargers. The Order provides flexibility to add additional dischargers as more information becomes available, but issuance should not be delayed, in view of the known impacts and urgent need to protect and remediate groundwater drinking water supply.

[20] Id.
[21] Figure 18 displays the lateral extent of the regional PCE plume relative to the location of municipal supply wells. Historic and recent PCE concentrations reported in the municipal supply wells, the sampling dates, PCE concentrations, date when PCE was first detected above the MCL (if applicable), and the well's current operational status are shown.
[22] Figure 13 shows the results of the Dischargers' Self Directed Source Area Investigation conducted in June/July 2017.
Figure 23 shows properties with reported or suspected PCE use relative to groundwater sample locations advanced by the Dischargers since 2017.

3.8 SCAP Regional PCE Plume Investigation

Groundwater data collected during the SCAP Regional PCE Plume Investigation in 2019-2020 provide a reconnaissance level snapshot of the lateral and vertical extent of the regional PCE plume, including the area between the Site and impacted receptors where data gaps (i.e., a lack of groundwater data) previously existed (Figure 3, Figure 4, and Figure 5)[23]. Investigation results confirm the Site's connection to the regional PCE plume and provides a general estimate of the lateral and vertical extent of the regional PCE plume. To date, the Site vicinity (i.e., the "South Y Aarea", intersection of Highway 50 and Highway 89, including the former Big O Tires and Former Norma's Cleaners (formerly Hurzel Properties, LLC) sites) is the only identified portion of the regional PCE plume with high concentrations (PCE detections above 500 micrograms per liter [µg/L]) of PCE contamination in shallow groundwater (Figure 3, Table 3 and Table 4)[24].

Shallow groundwater data collected in the vicinity of, and downstream of, the Site's stormwater conveyance system indicated PCE impacts and potential contaminant transport via the stormwater conveyance system and PCE in shallow groundwater has been detected at concentrations above commercial/industrial and residential groundwater vapor intrusion ESLs (Figure 24)[25].

Source area, receptor, and vertical conduit inventories were developed to support SCAP Regional PCE Plume Investigation tasks. These initial efforts were undertaken to evaluate potential risks and source areas within the regional PCE plume area and to assist in the identification of interim and final remedial action measures. Data collected during these efforts will be useful in developing future investigation and remediation plans.

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[23] Figure 3 displays the estimated lateral extent of the regional PCE plume relative to groundwater sample locations. Groundwater data prior to the SCAP Regional PCE Investigation was previously insufficient to conclusively connect known discharge at the Site to impaired/impacted domestic and municipal supply wells (i.e., receptors) in downgradient areas.
Figure 4 displays the estimated lateral extent of the regional PCE plume and the location of cross section line A-A' that extends from the Site north to Tahoe Keys.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2. ~~Contiguous~~ PCE contamination extends, without interruption, to depths up to 240 feet bgs as reported~~were identified~~ during the SCAP Regional PCE Plume Investigation. Groundwater investigation data was previously limited to depths above 80 feet bgs and to municipal supply well sampling events prior to the SCAP Regional PCE Plume Investigation.

[24] Figure 3 displays the estimated lateral extent of the regional PCE plume. Figure 3 was developed by AECOM utilizing EVS modeling software using groundwater analytical and lithological data from the various site specific and regional investigations conducted between January 2017 and November 2020.
Table 3 presents a summary of groundwater analytical data collected during the SCAP Regional PCE Plume Investigation used in the EVS modeling software.
Table 4 presents a summary of groundwater analytical data from investigations conducted between January 2017 and November 2020 used in the EVS modeling software.

[25] Figure 24 displays the estimated regional PCE plume in shallow groundwater from 0 to 25 feet bgs developed by AECOM using EVS modeling software using groundwater analytical and lithological data from the various site specific and regional investigations conducted between January 2017 and November 2020.

The source area inventory was developed to identify potential source(s) contributing to the regional PCE plume (Table 7 and Figure 25)[26]. The prioritization of the source area inventory relative to the estimated regional PCE plume in shallow groundwater (Figure 25), supported the issuance of this Order and 13267 Investigative Orders for the ~~Former~~ Big O Tires and Former Norma's Cleaners (formerly Hurzel Properties, LLC) sites.

The receptor inventory was developed to identify supply wells that have been impaired, impacted, or threatened by the regional PCE plume (Table 8 and Figure 26).[27] In addition, a sensitive receptor inventory was also developed to identify schools, day care facilities, hospitals, nursing homes, etc. to identify receptors that may be more suspectable to PCE exposure through groundwater or vapor intrusion.

The vertical conduit inventory was developed to identify all supply and monitoring wells within or near the regional PCE plume to determine if they may be responsible for the vertical migration of the regional PCE plume (Figure 5, Table 9, and Figure 27). [28]

4 SITE INVESTIGATIONS SUPPORT THE ORDER'S REQUIREMENTS

Investigations both prior to, and subsequent to, the 2017 CAO (Table 10)[29] document on-Site discharges of PCE that have migrated and continue to migrate off-Site, contributing to the regional PCE plume that has impaired the MUN beneficial use of groundwater in the Tahoe Valley South Basin within the Tahoe Hydrologic Unit. These investigations establish the following key underpinnings of the current Order:

1) The presence and migration of a discharge of waste that must be cleaned up and abated as required in the Order;

2) A nexus between the Site and the Regional PCE Plume; and

3) Additional investigations, as required in the Order, are necessary to determine the extent and severity of the discharge, evaluate the potential threat the contamination poses to human health, and design interim and longer-term remedial action plans.

A timeline summary of the Site-specific investigations discussed in this Staff Report are included in Table 10 below.

[26] Table 7 includes the prioritized potential source area inventory.
Figure 25 displays the prioritized potential source area inventory relative to the estimated regional PCE plume in shallow groundwater from 0 to 25 feet bgs.
[27] Table 8 includes the supply well receptor inventory
Figure 26 displays the supply well receptor inventory relative to the regional PCE plume.
[28] Figure 5 displays the estimated vertical extent of the regional PCE plume along the A-A' transect from the Site to the Tahoe Keys and shows the vertical migration of contamination.
Table 9 includes the vertical conduit inventory.
Figure 27 displays the vertical conduit inventory.
[29] Table 10 includes a timeline summary of the specific investigations discussed in this Staff Report.

Table 10 Investigation History

Time Period	Investigation Name	Purpose
October 2003	Groundwater Investigation Results	On-Site groundwater sampling
September 2004	Supplemental Investigation Results	On-Site soil sampling On and off-Site groundwater sampling Sewer survey
April 2005	Additional Site Investigation Results	On-Site soil sampling On and Off-Site groundwater sampling
November 2005	Additional Soil Investigation Results	On-Site soil sampling
July August 2008	Site Investigation Report of Findings	On-and Off-Site soil sampling On- and Off-Site groundwater sampling Monitoring well installation
December 2009	Interim Remedial System Installation/Pilot Testing	On-Site monitoring well installation Remediation System Pilot Testing
July and December 2015	Indoor Air Quality Assessments	Indoor and outdoor air sampling
June and July 2017	Dischargers' Self-Directed Source Area Investigation	Off-Site groundwater sampling
January 2018 to April 2019	Phase I, II, and III Off-Site Groundwater Investigations	On-and Off-Site groundwater sampling Off-Site monitoring well installation
October to December 2018	Stage I and Stage II Preferential Pathway Evaluations	On and Off-Site Sewer and Storm Drain System soil and soil vapor sampling Closed Circuit Television (CCTV) Sewer Inspection
January 2019 and August 2019	Data Gap Investigations	Passive soil vapor sampling
December 2019 to April 2020	In-Situ Chemical Oxidation Pilot Testing	In-Situ chemical oxidation pilot testing On-Site groundwater sampling
2019-present	State Water Board-Funded SCAP Regional Plume Investigation	Regional PCE Plume Characterization Vertical Conduit Evaluation Non-Municipal Supply Well Sampling Soil Vapor Sampling Sentry Well Network Installation Source Area Inventory Development
2017-present	Lahontan Water Board Staff Additional Source Evaluation	Chemical Use Questionnaires Directives Requiring Investigation at Specific Properties

The 2017 CAO reviewed investigations conducted at the Site since 2003 concluded that the initial discharges of wastes to the soil and groundwater occurred as a result of dry cleaning operations between approximately 1972 and 1979. The underlying investigation activities supporting the 2017 CAO indicated that the soil, soil vapor, and groundwater are impacted primarily with PCE but also contain PCE degradation biproducts such as trichlorethylene (TCE), cis-1,2 dichloroethylene (cis-1,2 DCE), trans- 1,2 dichloroethylene (trans-1,2 DCE) and 1,1-dichloroethylene (1,1-DCE) (collectively referred to contaminants of concern [COCs]). These findings were undisturbed by the petition process and outcome of the litigation.

Site investigations started in the South Y Area after PCE contamination was first reported in supply wells in 1989. Since the initial discovery of PCE, multiple regional and site-specific investigations have been conducted by various parties to investigate and cleanup and abate its effects (Table 11)[30]. Investigation activities at the Site commenced in 2003 after the presence of the coin operated DCU was identified as a potential source of waste discharge to the environment. Additional investigations were also conducted in response to the 2017 CAO requirements. These investigation reports are available for review at GeoTracker Global ID No. SL0601754315[31].

4.1 Investigations Prior to 2017 CAO Issuance

4.1.1 Dischargers' On-Site Soil Vapor and Indoor Air Investigations

Since April 2010, soil vapor samples have been collected from ten on-Site shallow soil vapor probes, on an approximately quarterly basis, to evaluate the effectiveness of the on-Site AS/SVE remediation system operation (Figure 12 and Table 1; PES, 2021)[32]. Although the Site's AS/SVE remediation system has reduced PCE mass in on-Site shallow soil gas and groundwater, monitoring results indicate that on-Site PCE contamination in soil vapor remains above the SF Bay Water Board's Commercial/Industrial land use ESL, indicating a potential risk to human health due to vapor intrusion, and additional on-Site remediation is necessary.

Because on-Site shallow soil vapor concentrations of PCE and PCE degradation by-products such as TCE and cis-1,2 DCE exceeded the vapor intrusion ESLs, in July and December 2015, indoor air assessments of select occupied tenant spaces within the South Y Shopping Center and outdoor air was conducted (PES, 2015 and PES, 2016).

[30] Table 11 provides a summary of the site specific and regional investigations conducted historically to investigate the regional PCE plume and underground storage tank sites in the South Y Aarea with PCE groundwater data.
[31] Site Case File Link to GeoTracker
[32] Figure 12 shows recent and maximum concentrations of PCE, TCE, and cis-1,2 DCE in soil gas. The locations of soil vapor probes, soil vapor extraction wells, and groundwater monitoring wells are also illustrated. Soil gas concentrations exceed the vapor intrusion to indoor air ESL in vapor probes located directly adjacent to the building (VP-1, 5, 6 and 9). The highest PCE concentrations in soil gas (VP-2) are reported adjacent to monitoring well pair LW-MW-1S/D and the western stormwater conveyance drop inlet. Table 1 provides a summary of the soil vapor analytical data collected at the Site. Concentrations above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL.

Detectable PCE concentrations were reported in 11 of the 12 indoor air samples collected in the four tenant spaces (Figure 30, Figure 31, Table 12, and Table 13)[33]. Although COC concentrations did not exceed the Commercial/Industrial ESL for indoor air, these samples provide evidence of a residual source of PCE that is impacting indoor air and a potential threat to human health. Based upon current guidance, the indoor air assessment is incomplete because the Site's AS/SVE system was operating during the time of the indoor air investigations. Additional evaluation of potential risk of vapor intrusion to indoor air from residual PCE and PCE degradation by-products present on-Site will be necessary following the cessation of AS/SVE remediation system operation and may require further mitigation measures to protect building occupants.

4.1.2 Dischargers' Initial On-Site Soil and Groundwater Investigations

Five initial phases of investigation were conducted at the Site by the Dischargers between 2003 and 2008, prior to interim remedial action implementation (PES, 2003; PES, 2004; PES, 2005; PES, 2006; and E_2C, 2008). Investigation activities included the collection of over 110 soil samples to depths up to 52.5 feet bgs, 24 grab groundwater samples, and 21 groundwater samples from on-Site and off-Site monitoring wells. Eight temporary dual-zone monitoring well pairs were installed with shallow zone and middle zone wells screened from approximately 10 to 25 feet bgs and 35 to 50 feet bgs, respectively. PCE was detected in soil both on-Site and off-Site at concentrations that exceed the SF Bay Water Board's leaching to groundwater ESL (Figure 9 and Figure 10)[34] meaning that the PCE at these concentrations presented a threat to groundwater. PCE was detected in groundwater both on-Site and off-Site at concentrations that exceed the California Maximum Contaminant Level (MCL) (Figure 16, Figure 17, Figure 28, and Figure 29)[35], meaning that a discharge of PCE to waters of the State had already occurred. These investigations did not completely assess the lateral and vertical extent of the PCE discharge at the Site but established the primary release mechanisms, identified on-Site source areas of contamination (i.e., near LW-MW-1S/D well pair and western drop inlet of the Site's stormwater conveyance), and demonstrated off-Site discharge of PCE in groundwater.

4.1.3 Dischargers' Groundwater Monitoring Prior to 2017 CAO Issuance

Multiple descriptions and designations have been used by the Dischargers' consultants and previous investigators to describe the groundwater zones underlying the Site. A

[33] Figure 30 and Figure 31 show the sample locations for the indoor air investigations conducted in July and December 2015, respectively. Table 12 and Table 13 summarize the analytical results of the July and December 2015 indoor air investigation, respectively.
[34] Figure 9 and Figure 10 show sample locations where PCE concentrations in soil exceed the leaching to groundwater ESL of 0.08 mg/kg. PCE concentrations in soil above the leaching to groundwater ESL was reported in the northern parking area (Figure 9), beneath the DCU (Figure 9), and during on and off-Site monitoring well installations (Figure 10).
[35] Figure 28 and Figure 29 show PCE concentrations in shallow and middle zone groundwater, respectively during the initial groundwater investigations conducted between 2003 and 2005.
Figure 16 and Figure 17 show PCE concentrations in shallow and middle zone groundwater, respectively during on- and off-Site monitoring well installations in 2008.

general description of the three zones identified by the Dischargers consultants and surrounding lithology may be found in the April 1, 2019 *Investigation Summary Report* (PES, 2019b) and is used below. The shallow groundwater zone begins at approximately ground surface and extends to approximately 30 ft bgs. The middle groundwater zone extends from approximately 30 feet bgs to 60 feet bgs. The deeper groundwater zone is divided into an upper and lower zone; the upper zone extends from approximately 60 feet bgs to 80 feet bgs while the lower deeper zone extends below 80 feet bgs. Supply wells in the Tahoe Valley South Basin draw from depths within and below the middle zone. All three zones are hydraulically connected.

Groundwater monitoring commenced in August 2008 and has been performed on a quarterly basis since March 2010 (Table 2)[36]. The quarterly monitoring program was conducted at on-Site and one off-Site shallow zone wells. The quarterly monitoring program prior to 2017 CAO issuance did not include evaluation of the middle zone. Reporting indicated shallow groundwater flowed primarily to the north (Figure 32)[37]. Concentrations of PCE in the downgradient, off-Site shallow zone monitoring well (OS-1) have exceeded, and continues to periodically exceed, the MCL (Figure 22 and Table 2)[38]. The lateral and vertical extent of PCE contamination in groundwater originating from the Site was still not determined at the time of the issuance of the 2017 CAO.

Groundwater monitoring prior to 2017 CAO issuance indicated 1) On-Site PCE was detected in groundwater at concentrations that was several orders of magnitude above the MCL, 2) off-Site migration of PCE groundwater contamination occurred prior to interim remedial implementation in 2010, 3) significant declines in on-Site and adjacent off-Site PCE concentrations following operation of the AS/SVE remediation system, and 4) off-Site migration of groundwater contamination exceeding the MCL during remedial system operation. The Dischargers' historical groundwater monitoring network is not sufficient to evaluate 1) the lateral and vertical extent of PCE contamination originating from the Site and/or 2) the threat to human health posed by known and potential threats of PCE contamination in groundwater (e.g., water supply wells; Figure 2, Figure 18)[39] or vapor intrusion to indoor air pathways (Figure 24)[40]).

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[36] Table 2 provides a summary of the quarterly groundwater monitoring results conducted at the Site. Off-Site monitoring well pairs OS-2 through OS-4 were not present prior to 2017 CAO issuance.

[37] Figure 32 illustrates the general groundwater flow direction in the shallow zone based on 23 quarterly monitoring events conducted between 2009 and 2015.

[38] Figure 22 shows the location of off-Site monitoring well OS-1 and recent groundwater PCE analytical results.
Table 2 provides a summary of groundwater analytical results from monitoring well OS-1.

[39] Figure 2 shows the Site's monitoring well network.
Figure 18 shows the estimated lateral extent of the regional PCE plume relative to municipal supply well locations.

[40] Figure 24 shows the stormwater conveyance system and sanitary sewer conveyance system relative to estimated PCE concentrations in shallow groundwater from 0 to 25 feet bgs. This figure displays PCE isocontours at the residential groundwater vapor intrusion ESL of 0.64 µg/L, the commercial groundwater vapor intrusion ESL of 2.8 µg/L, at concentrations between 2.8 µg/L and the MCL, and at concentrations greater than 25 µg/L.

4.1.4 Dischargers' On-Site Preferential Pathway Investigations

Limited soil and groundwater investigations were conducted within the former dry cleaner tenant space (Figure 33, Figure 9, and Table 14; PES, 2004)[41]. During initial soil and groundwater investigation activities conducted in 2004, soil and groundwater samples were collected from three locations within the former tenant space. Samples were collected under the sewer pipe serving the northern-most bank of washing machines, near a sewer lateral connection, and in the vicinity of the former DCU. PCE was detected in the soil sample collected in the vicinity of the former DCU (SB-1-1; 0.095 milligram per kilogram [mg/kg]); PCE was not detected in soil near the washing machines or sewer lateral connection, although cis-1,2 DCE [a degradation byproduct of PCE]) was detected below the sewer pipe serving the northern most bank of washing machines (SB-2-1.5; 0.013 mg/kg)[42]. PCE was detected above the MCL in two groundwater samples collected within the building footprint (GW-SB-3-27; 8.3 µg/L PCE [lateral connection] and GW-SB-1-27; 6.7 µg/L PCE [DCU area]). No additional soil or groundwater samples were or have been collected within the former tenant space. The PCE concentrations detected in soil and groundwater beneath the former tenant space indicated releases from dry cleaning equipment failure and/or on-Site handling, storage, and disposal practices of PCE or DCU separator water discharges to the sanitary sewer.

Although the Dischargers contend that the on-Site investigations conducted between 2004 and 2009 (PES, 2003; PES, 2004; PES, 2005; PES, 2006; and E_2C, 2008) adequately addressed preferential transport via the sanitary sewer, these investigations did not 1) identify and evaluate all sanitary sewer alignments (Figure 9)[43], 2) inspect the integrity of the sanitary sewer pipes within the building interior for defects, 3) investigate the lateral and vertical extent of PCE contamination already identified underneath the former tenant space, and 4) specifically evaluate sanitary sewer backfill as a preferential pathway. The evaluation of the sanitary sewer as a preferential pathway is determined to be incomplete at this time.

4.1.5 Communication Following Issuance of the 2017 CAO

Although Site investigation work was conducted between 2003 and 2009 and the Dischargers had knowledge that PCE contamination originating from the Site was present in soil and groundwater on- and off-Site and that supply wells downgradient from the Site were impaired by PCE contamination, the extent of contamination originating from the Site was never defined and contaminant transport along preferential pathways were not adequately investigated to determine if additional remedial actions were needed beyond

[41] Figure 33 shows the three sample locations within the former dry cleaner tenant space.
Figure 9 shows that no soil samples were collected along the former dry cleaner tenant space's sanitary sewer lateral or mainline alignments on the western portion of the Site.
Table 14 provides a summary of the soil and groundwater analytical data collected within the former dry cleaner tenant space.
[42] Figure 9 shows that no soil samples were collected along the former dry cleaner tenant space's sanitary sewer lateral or mainline alignments on the western portion of the Site.
[43] Figure 9 shows that no soil samples were collected along the former dry cleaner tenant space's sanitary sewer lateral or mainline alignments on the western portion of the Site.

operation of the existing on-Site AS/SVE remediation system, necessitating issuance of the 2017 CAO.

Following issuance of the 2017 CAO, Lahontan Water Board staff engaged in numerous meetings and draft document review and comment cycles with Fox, Seven Springs, and their consultants (EKI Water and Environment, Inc [EKI] and PES Environmental, Inc [PES]) to provide informal and formal CAO compliance guidance. The 2017 CAO required a work plan describing the dynamic and iterative investigation strategy and decision logic to be used to define the lateral and vertical extent of groundwater contamination originating from the Site. Three iterations of work plans were reviewed by Lahontan Board staff prior to the *Conditional Acceptance of the March 19, 2018 Amended Groundwater Investigation Work Plan* dated August 22, 2018, ultimately accepted to address 2017 CAO Order 2.1 requirements. Semi-annual site investigation summary reports were required to be submitted to summarize the investigation progress and describe any potential changes in investigation strategy as described in 2017 CAO Order 2.3. A Corrective Action Plan was required within 90 days of the due date of the final investigation technical report.

To promote efficient communication and CAO Order compliance, Lahontan Water Board staff provided a "Suggestions for Compliance" section in the conditional acceptance letter. In this "Suggestions for Compliance" section, Lahontan Water Board staff offered to schedule recurring technical meetings with Fox and Seven Spring's consultants to discuss proposed and planned site investigation activities, logistical challenges and status, site investigation findings, data interpretation, and need for additional investigation activities. These recurring technical meetings with EKI and PES commenced on October 1, 2018. Lahontan Water Board staff continued to regularly meet with EKI and PES staff to discuss technical issues until August 2020 at which time EKI stopped participating due to the El Dorado Superior Court decision related to Fox. Lahontan Water Board staff have continued to regularly meet with PES. Approximately 60 total progress and planning reports and associated technical meetings have been submitted and held as of February 2022

During these meetings, Lahontan Water Board staff regularly:

1) Requested updates on Dischargers' progress in determining the lateral and vertical extent of PCE contamination originating from the Site;

2) Reminded Dischargers that determining the lateral and vertical extent of PCE contamination was a critical component of the 2017 CAO;

3) Reminded Dischargers that identification of other potential PCE sources that may be contributing to the regional PCE plume does not mean investigation objectives have been met; and

4) Reminded Dischargers of the applicability of provisions of the 2017 CAO requiring a workplan outlining the means and methods to be used to determine the lateral and vertical extent of contamination originating from the Site.

Despite these regular communications, the Dischargers elected not to complete investigation activities (i.e., step out borings/transects) that would result in the determination of the lateral and vertical extent of PCE contamination originating from the Site. Due to the Dischargers' investigation strategy of focusing on other potential PCE source identification rather than extent of the PCE migration, the lateral and vertical extent of PCE contamination originating from the Site still has not been determined by the Dischargers. Because the 2017 CAO only required submittal of a remedial action plan after completion of site investigation, the Dischargers have continued to successfully evade addressing the impacts of the PCE discharge since the issuance of the 2017 CAO.

4.2 INVESTIGATIONS FOLLOWING 2017 CAO ISSUANCE

4.2.1 Dischargers' Groundwater Investigations and Monitoring

Three on-Site middle zone wells were added to the quarterly monitoring program in May 2017 to aid in the evaluation of the extent of on-Site contamination within the middle zone. Three additional off-Site shallow and middle zone well pairs were added to the quarterly monitoring well program in November 2018 after the completion of "Phase II" investigation activities to aid in the evaluation of the extent and magnitude of off-Site migration and groundwater flow directions within the shallow and middle zones (Figure 22)[44].

Off-Site groundwater investigation activities conducted by the Dischargers' consultants following 2017 CAO issuance (PES, 2019b, 2019d) have included "Phase I" (January 2018), "Phase II" (October 2018), and "Phase III" (March and April 2019) activities. "Phase I" and "Phase II" investigation activities included collecting multi-depth grab groundwater samples along two transects in the immediate downgradient direction of the Site and the installation of three off-Site monitoring well pairs (Figure 8, Figure 13, and Figure 22)[45]. "Phase III" activities involved 1) collecting groundwater samples from two observation wells for the inactive Clement municipal supply well and 2) collecting multi-depth grab groundwater samples cross-gradient, downgradient and upgradient of the Site along Tata Lane, Glorene Avenue, Lake Tahoe Boulevard, and Emerald Bay Road (Figure 34)[46]. The most downgradient investigation effort consisted of the installation off-Site wells in Roger and James Avenues (Figure 22)[47] approximately 1,000 feet to the north of the Site) during the "Phase II" investigation.

[44] Figure 22 shows the location of the on-Site (LW-MW-1, LW-MW-2, and LW-MW-5 monitoring well pairs) and off-Site monitoring well pairs (OS-2 through OS-4 monitoring well pairs) added to the quarterly monitoring program following 2017 CAO issuance.

[45] Figure 8 shows sample locations and groundwater analytical results for the "Phase I" investigation along Transect 1.
Figure 13 shows sample locations and groundwater analytical results for the "Phase II" investigation along Transect 2. Results of the Dischargers' Self Direct Source Area Investigation are also shown on the figure.
Figure 22 shows the location of off-Site monitoring well pairs OS-2 through OS-4 well pairs installed during the "Phase II" investigation.

[46] Figure 34 shows sample locations and groundwater analytical results for the "Phase III" investigation.

[47] Figure 22 shows the location of off-Site monitoring well pairs (OS-2 through OS-4 well pairs) installed during the "Phase II" investigation. The well pairs represent the most down-gradient area investigated by the Dischargers.

The groundwater data collected during these off-Site investigations and quarterly groundwater monitoring confirmed (1) PCE contamination in groundwater above the MCL of 5 µg/L originating from the Site is detected continuously, without interruption, to the regional PCE plume, (2) PCE contamination above the MCL of 5 µg/L originating from the Site continues to migrate off-Site in spite of interim remedial action implementation, and (3) PCE contamination is not migrating onto the Site from up-gradient source(s).

4.2.2 Dischargers' Chemical Oxidation Pilot Test and Observations

In November 2019, an in-situ chemical oxidation pilot test (pilot test) was implemented to evaluate the feasibility of removing PCE mass remaining in the capillary fringe and shallow groundwater (E_2C, 2020). During the pilot test, potassium permanganate oxidant solution was injected into the subsurface at 19 locations (Figure 35)[48] in the northern parking area to depths up to 31 feet bgs. At the time of the pilot test, the Dischargers' consultants believed that the silt layer observed at 29 to 31 feet bgs limited PCE contaminant migration from the shallow zone to middle zone, and therefore did not inject potassium permanganate in the middle zone.

Post pilot test groundwater monitoring was conducted on November 13, 2019 and March 26, 2020. Although potassium permanganate was not injected in the middle zone during the pilot test, groundwater monitoring results indicate that the largest PCE concentration reduction occurred in the middle zone, decreasing from 190 µg/L to 24 µg/L in middle zone monitoring well LW-MW-1D (Figure 2)[49]. Reductions of this magnitude would not be expected to occur naturally in such a short timeframe. The only reasonable conclusion is that the middle zone is hydraulically connected to the shallow zone, where the potassium permanganate was injected.

This conclusion is further supported by visual color monitoring in selected monitoring wells conducted between December 20, 2019, and April 9, 2020, to evaluate the distribution of chemical oxidant in the subsurface. Purple color, an indication of oxidant presence, was observed in middle zone monitoring well LW-MW-1D throughout the entire visual monitoring period.

These observations demonstrate downward migration at the Site and refute the hypothesis of the silt layer is an effective lithologic barrier. As described above, the Site's current CSM incorrectly asserts that the silt layer observed between 29 and 31 feet bgs is serving as an effective barrier limiting PCE contaminant migration from the shallow zone to the middle zone. The pilot test investigation highlights a critical flaw in the Dischargers' CSM and demonstrates that downward vertical migration of PCE contamination has occurred in the past and continues to occur as residual on-Site PCE contamination continues to impact groundwater in the middle zone at depths beyond the AS/SVE remediation system's vertical zone of influence.

[48] Figure 35 shows the 19 locations where oxidant solution was injected into the subsurface.
[49] Figure 2 shows the location of LW-MW-1D.

4.2.3 Dischargers' and Other's Preferential Pathway Investigations

Stage I (EKI, 2019b), Stage II (EKI, 2019b), and off-Site preferential pathway investigations conducted by the Dischargers (EKI, 2019b and EKI, 2019d) and others (WHA, 2020a and WHA, 2020b) provide evidence of the location and mechanism for on-Site discharge and off-Site transport of PCE. Passive soil vapor investigations have been conducted at the Site and five off-Site areas (the former Big O Tires site, Tucker Basin, the Lakeside Napa site, locations along Glorene Avenue, and the Former Norma's Cleaners (formerly Hurzel Properties, LLC) site). The investigation results confirm on-Site discharges to the sanitary sewer and stormwater conveyance system and off-Site contaminant transport via the stormwater conveyance system and potentially the sanitary sewer. A summary of the investigation activities and conclusions is provided below.

On-Site preferential pathway investigation activities (Stage I) included the following:

1) A CCTV inspection of stormwater conveyance and sanitary sewer pipe conducted by EKI/PES. The on-Site CCTV activities did not include 1) evaluation of pipe beneath, or within, the former tenant space or 2) the off-Site sanitary sewer pipe connection with the sewer mainline (Figure 36)[50]

2) Soil and passive soil vapor sampling along and within the stormwater conveyance pipe alignment and at select locations along and within sanitary sewer pipe alignment, and passive soil gas sampling within one sanitary sewer manhole conducted by EKI/PES (Figure 11 and Figure 7)[51].

Off-Site preferential pathway investigation activities (Stage II) included:

1) Passive soil vapor and groundwater sampling along Glorene Avenue conducted by EKI/PES (Figure 7 and Figure 37)[52];

2) Passive soil vapor sampling within and adjacent to the Lakeside Napa site conducted by EKI/PES (Figure 7)[53];

[50] Figure 36 shows the location of on-Site CCTV inspections of the stormwater conveyance and sanitary sewer conducted.
[51] Figure 11 shows soil analytical results within sanitary sewer and stormwater conveyance system utility backfills.
Figure 7 shows soil vapor analytical results within and adjacent to sanitary sewer and stormwater conveyance system utility backfills. Soil vapor analytical results for the Lakeside Napa site and Tucker Basin are also shown.
[52] Figure 7 shows soil vapor analytical results within Glorene Avenue. Soil vapor analytical results for the Site, the Lakeside Napa site and Tucker Basin are also shown.
Figure 37 shows groundwater analytical results within Glorene Avenue in text boxes. Soil vapor analytical results for the Lakeside Napa site are also shown.
[53] Figure 7 shows passive soil gas results for the Lakeside Napa site.

3) Passive soil vapor sampling within Tucker Basin (the stormwater conveyance system infiltration/detention basin located immediately downstream of the Site) conducted by EKI/PES[54]; and

4) A CCTV sewer inspection underneath Lake Tahoe Boulevard and along Glorene and Tucker Avenues conducted by the District (Figure 38)[55].

Off-Site preferential pathway activities conducted by others (Former Big O Tire site) included:

1) Geophysical survey at the former Big O Tires site conducted by Welsh Hagen and Associates (WHA).

2) Passive soil vapor sampling at the former Big O Tires site conducted by WHA (Figure 39)[56].

3) Excavation of stormwater conveyance inlet at former Big O Tires site conducted by WHA.

4) Elevation survey of stormwater conveyance piping at former Big O Tires site into Tucker Basin conducted by WHA.

4.2.3.1 Sanitary Sewer

PCE contamination was detected in the sanitary sewer backfill in one (SS1-5.75; 0.0018 mg/kg) of the two soil samples collected during the on-Site "Stage 1" Preferential Pathway Investigation along the western building perimeter (Figure 11; EKI, 2019b)[57]. Elevated PCE mass was also reported in a passive soil vapor sample along the sanitary sewer alignment paralleling the western building footprint (PSG-2; 307 nanograms [ng]) in the vicinity (Figure 7) [58]. Groundwater sample GW-3 collected adjacent to the sanitary sewer lateral and building connection on the western side of the building, indicated a PCE concentration of 31.7 µg/L (above the MCL) between 41 and 45 feet bgs (Figure 8)[59]. Although the CCTV inspection of the sanitary sewer pipe to the west of the building did not identify significant cracks in the relevant area, no CCTV inspection was performed on the pipe underneath the building or on-Site sanitary sewer pipe connection with the mainline and the detections of PCE in soil, soil gas, and groundwater in the vicinity of and within the sewer alignment suggest:

[54] Figure 7 shows passive soil gas results within Tucker Basin.
[55] Figure 38 shows the sanitary sewer alignment where CCTV inspection activities along Glorene and Tucker Avenues were conducted by the District.
[56] Figure 39 shows PCE concentrations in soil vapor at the ~~Former~~ Big O Tires site.
[57] Figure 11 shows the location SS1 of where PCE concentrations in soil was reported in sewer backfill.
[58] Figure 7 shows the location (PSG-2) of where elevated PCE concentrations in soil vapor was reported in the vicinity of the sewer alignment.
[59] Figure 8 shows the location (LTLW-GW-3) of where an elevated PCE concentration (concentrations on this drawing are shown in micrograms per liter) in groundwater was reported adjacent to the building's sewer lateral.

1) On-Site PCE source remain in the vicinity (e.g., beneath the building) and at concentrations sufficient to impact groundwater at concentrations above MCL;

2) Additional evaluation of exposure pathways (i.e., vapor intrusion and groundwater) relative to the remaining soil, soil vapor, and groundwater contamination in the vicinity is needed; and

3) Potential discharge(s) from the Site to the sanitary sewer may have occurred.

Passive soil gas and groundwater sampling was conducted in 2019 along Glorene Avenue adjacent to the Lakeside Napa site (Figure 37)[60]. PCE masses in soil gas ranged from not detected above 10 ng to 252 ng along the sanitary sewer alignment and within Glorene Avenue. PCE concentrations above the MCL were reported from the water table to 62 feet bgs (GW-13, GW-14, and GW-15) along Glorene Avenue. The highest PCE concentrations were reported at depths between 42 and 46 feet bgs, with PCE concentrations ranging from 14.1 to 94.4 µg/L in the three samples collected. The distribution of PCE in groundwater provide additional lines of evidence to support off-Site migration from the Site. The distribution of PCE in soil gas and groundwater (concentrations above the MCL in shallow groundwater) along Glorene Avenue also supports the conclusion that PCE from the Site may have been discharged into the sanitary sewer and escaped through joints, cracks, or other minor imperfections.

The evaluation of potential on-Site releases from the sanitary sewer remains incomplete because 1) investigation activities did not include assessment of the pipes beneath the existing building to identify potential defects and no additional soil or groundwater sampling have been performed within the building since the initial investigation 2004 which identified impacts to soil and groundwater, and 2) PCE mass was detected in the sanitary sewer conveyance system utility backfill along the western edge of the building, but no additional soil, soil vapor, or groundwater samples were collected along the off-Site alignment of the sanitary sewer conveyance pipe between the Site and Glorene Avenue.

4.2.3.2 Stormwater Conveyance System

The Site's stormwater conveyance system is designed to transport stormwater from the Site to Tucker Basin (EKI, 2019b). Tucker Basin is an unlined, vegetated 200-foot by 150-foot infiltration/detention basin, currently fitted with a piped inlet and outlet, that serves as a component of the City of South Lake Tahoe's stormwater conveyance system in the South Y Area (Figure 2 and Figure 40)[61]. Stormwater from the Site has been conveyed into the Tucker Basin area since at least 1962 (EKI, 2019b)[62]. Between 1962

[60] Figure 37 shows passive soil vapor sampling results along Glorene Avenue and at the Lakeside Napa site. Groundwater analytical results along Glorene Avenue are also shown.
[61] Figure 2 shows the general location of Tucker Basin.
Figure 40 shows the current configuration of Tucker Basin.
[62] Figure 41 shows the configuration of the stormwater conveyance system into Tucker Basin in 1978 and denotes the stormwater conveyance system drop inlets at the Site and at ~~former~~ Big O Tires site and discharge point into Tucker Basin.

and 1978, a "y" piping configuration was added on the north side of Lake Tahoe Boulevard which conveyed stormwater runoff from the ~~former~~ Big O Tires site to the Tucker Basin (Figure 41)[63]. Regardless of the potential stormwater conveyance system configurations between 1962 and 1978, the area north of Lake Tahoe Boulevard served as the Site's stormwater outfall location during the release timeframe.

Tucker Basin received stormwater from both the Site and the ~~former~~ Big O Tires site (WHA, 2020a). As described below, the evidence supports the determination that some of the PCE detected in Tucker Basin is linked to discharges from the Site. The ~~former~~ Big O Tires site may also be an additional source of PCE contamination, which is the subject of an ongoing investigation at the ~~former~~ Big O Tires site.

1) PCE mass in soil vapor was reported at concentrations several orders of magnitude above the estimated background concentration of 0 ng PCE at both the Site's and ~~former~~ Big O Tires site's stormwater conveyance drop inlets and at the discharge point to Tucker Basin (Figure 7 and Figure 39)[64]. The PCE mass distribution pattern (the highest concentrations are reported at the stormwater conveyance system drop inlets and discharge point into Tucker Basin which decline with distance) at stormwater conveyance system drop inlets and at the discharge point to Tucker Basin indicate that stormwater contaminated with PCE was transported to Tucker Basin via the Site's and the ~~former~~ Big O Tires' stormwater conveyance systems. Additional investigation is required to confirm that the ~~former~~ Big O Tires site is contributing PCE mass to the regional PCE plume.

2) Investigation of the stormwater conveyance system components at the Site, ~~former~~ Big O Tires site, and Tucker Basin (i.e., elevations, connections, and alignments of drop inlets, conveyance pipes, etc.) by the Dischargers' and ~~former~~ Big O Tires site consultants have confirmed that the Site's and the ~~former~~ Big O Tires' stormwater conveyance system conveyed stormwater to Tucker Basin.

3) No other properties have been identified as potential contributors of PCE contaminated stormwater to the Site's and ~~former~~ Big O Tires site's stormwater conveyance systems and Tucker Basin.

The evaluation of off-Site transport of PCE through the stormwater conveyance system to Tucker Basin, remains incomplete because no additional soil vapor, soil, or groundwater investigations have been implemented or proposed following the initial passive soil vapor survey to delineate the extent of contamination in the areas identified with elevated PCE mass in soil vapor. Additional investigation is needed within, and

[63] Id.
[64] Figure 7 shows the stormwater conveyance system and passive soil vapor sampling results, including at stormwater conveyance system inlet locations (PSG-9/SD3 and PSG-1/SD2), at the Site and within Tucker Basin.
Figure 39 shows PCE passive soil vapor sampling results at the ~~Former~~ Big O Tires site, including at the stormwater conveyance system drop inlet (PSG-1).

downgradient of, Tucker Basin to evaluate the magnitude and extent of contamination and appropriate remedial actions and mitigation measures.

4.2.4 State Water Board's Regional PCE Plume Investigation

Within months of adoption of the 2017 CAO, it was clear to Lahontan Water Board staff that the Dischargers had no intention of effectively or promptly conducting the required investigations to determine the lateral and vertical extent of contamination originating from the Site. Due to significant impacts to receptors (i.e., drinking water supply wells), requiring immediate corrective actions to protect public health, and the critical need to take action to characterize the regional PCE plume and identify potential PCE sources, Lahontan Water Board staff pursued a grant from the State Water Board's SCAP in 2018. On March 4, 2019, the Lahontan Water Board received a $4,600,200 SCAP grant (Department of General Services [DGS], 2019) to investigate the regional PCE plume in the South Y Area (SCAP Regional PCE Plume Investigation). Specific contract tasks include regional PCE plume characterization, non-municipal supply well sampling, soil vapor sampling, sentry well network installation, and vertical conduit evaluation and destruction. Contract completion is scheduled for July 2023.

The following SCAP Regional PCE Plume Investigation activities have been completed:

1) In 2019 and 2020, regional PCE plume characterization activities were conducted. Field activities included discrete depth groundwater sampling and lithological evaluation to depths up to 320 feet bgs at 79 locations (Figure 3)[65]. Borings were advanced north of the intersection of Highway 50 and Highway 89 to the Tahoe Keys, resolving some of the "data gaps" that were at issue before the adoption of the 2017 CAO and groundwater investigations completed by the Dischargers following 2017 CAO issuance.

2) In October 2019, water samples were collected from eight active and one inactive non-municipal supply wells within or near the regional PCE plume. PCE was not detected in the active non-municipal supply wells sampled and was detected at a concentration of 0.5 µg/L in the inactive non-municipal supply well at Tahoe Valley Elementary School.

3) In June of 2020, the inactive municipal supply well owned by Lukins Brothers Water Company (LBWC), LBWC #4 (impaired with PCE) (Figure 18)[66], was properly destroyed because the regional PCE plume characterization identified the well as a vertical conduit for PCE contamination (i.e., preferential pathway for downward migration of PCE contamination).

[65] Figure 3 shows the borings advanced during the 2019 and 2020 Regional PCE Plume Investigation along with sampling locations from site specific and regional investigations conducted between January 2017 and November 2020 and provides an estimate of the lateral extent of the regional PCE plume.
[66] Figure 18 shows the location of LBWC #4

4) In 2021, sentry well network installation activities were completed. The activities included the installation and sampling of sentry wells (nine total) for LBWC #1 (threatened by PCE contamination), LBWC #5 (threatened by PCE contamination), Tahoe Keys Water Company (TKWC) #1 (impacted by PCE contamination), and TKWC #2 (impaired by PCE contamination) to monitor groundwater quality at various depths upgradient of impacted, impaired, or threatened municipal supply wells.

The remaining SCAP Regional PCE Plume Investigation activities include:

1) A soil vapor investigation to assess the potential threat to human health that the shallow regional PCE plume poses via the vapor intrusion exposure pathway.

2) A second non-municipal supply well sampling event.

3) Continued monitoring and sampling of the nine sentry wells.

4) Continued evaluation and destruction of potential vertical conduits that may be responsible for the vertical migration of PCE contamination.

Although the SCAP Regional PCE Plume Investigation is ongoing and additional work is needed, initial results provide:

1) A general understanding of the lateral and vertical extent of the regional PCE plume (Figure 3, Figure 4, and Figure 5)[67];

2) An initial estimate of PCE concentrations and migration pathways within the regional PCE plume (Figure 24)[68;]

3) An initial evaluation of impaired, impacted and threatened receptors (Figure 26)[69], and

4) Confirmation that the regional PCE plume contamination extends without interruption from the Site to impaired and impacted receptors [70.]

More specifically, the data shows a continuous regional PCE plume migrating from south to north (under the influence of the regional horizontal groundwater flow direction and gradient), and descending with distance from the source area (under the influence of the

[67] Figure 3, Figure 4, and Figure 5 provide an estimate of the lateral (Figure 3) and vertical (Figure 5) extent of the regional PCE plume along the A-A' transect (Figure 4).
[68]Figure 24 shows the preferential path inventory (i.e., stormwater conveyance system and sanitary sewer conveyance system) relative to PCE concentrations in shallow groundwater from 0 to 25 feet bgs. This figure displays PCE isocontours at the residential groundwater vapor intrusion ESL of 0.64 µg/L, the commercial groundwater vapor intrusion ESL of 2.8 µg/L, at concentrations between 2.8 µg/L and the MCL, and at concentrations greater than 25 µg/L.
[69] Figure 26 shows receptor locations relative to the estimated lateral extent of the regional PCE plume.
[70] Attachment A, Figures 3, 4 and 5 shows the estimated lateral (Figure 3) and vertical (Figure 5) extent of the regional PCE plume relative to municipal supply wells along the A-A' transect (Figure 4).

regional downward vertical gradient)[71]. This pattern of plume migration has resulted in higher PCE concentrations in shallow groundwater near known and potential unauthorized release locations (e.g., the Site, Tucker Basin, the former Big O Tires site) and unimpacted shallow, groundwater overlying deeper, contaminated groundwater in the distal portions of the plume, including areas where the Dischargers speculate additional potential sources exist.

The data also shows a continuous shallow PCE plume originating at the Site that appears to be migrating to the northeast along the City of South Lake Tahoe's stormwater conveyance system (Figure 24).[72] PCE concentrations in shallow groundwater in the vicinity of the City of South Lake Tahoe's stormwater conveyance system exceed residential and commercial groundwater vapor intrusion ESLs indicating that shallow groundwater plume poses a potential threat to human health.

During the 2019 and 2020 regional PCE plume characterization, PCE was detected in only four (4) out of a total of 95 shallow groundwater samples (collected above approximately 30 feet bgs) at concentrations exceeding the MCL within the estimated lateral extent of the regional PCE plume (Note: PCE concentrations reported above the MCL at depths below "shallow groundwater" are not summarized or discussed here). These four samples were collected in areas near the City of South Lake Tahoe's stormwater conveyance system and the maximum PCE concentration detected was 14 µg/L (CPT-F01 on James Avenue south of 5th Street) which is multiple orders of magnitude lower than the historical high concentrations of PCE detected in on-Site shallow groundwater (i.e., 5,380 µg/L PCE in LW-MW-1S on May 11, 2011). These results do not provide indication of additional PCE sources contributing to shallow groundwater contamination. Instead, these results provide further evidence suggesting that PCE contaminant transport from the Site has occurred along the City of South Lake Tahoe's stormwater conveyance system (Figure 24)[73].

As described in the *Lahontan Water Board's Evaluation of Additional Potential PCE Sources* section, Lahontan Water Board staff have issued numerous investigative orders to properties with documented unauthorized releases and to suspected source properties (e.g., properties with past chemical use, storage, or disposal) overlying the areas with PCE detections above the MCL in shallow groundwater to identify and rule out potential contributors to the regional PCE plume. The evaluation, including data collection by other dischargers and for the SCAP Regional PCE Investigation, of potential sources contributing to the regional PCE plume is ongoing. Should additional investigation determine contribution of PCE from other properties, the Lahontan Water Board may

[71] Id.
[72] Figure 24 shows the stormwater conveyance system and sanitary sewer conveyance system relative to estimated PCE concentrations in shallow groundwater from 0 to 25 feet bgs. This figure displays PCE isocontours at the residential groundwater vapor intrusion ESL of 0.64 µg/L, the commercial groundwater vapor intrusion ESL of 2.8 µg/L, at concentrations between 2.8 µg/L and the MCL, and at concentrations greater than 25 µg/L.
[73] Id.

amend the Order to include other dischargers or direct a separate cleanup and abatement order to those dischargers.

4.3 Evaluation of Potential Sources to the Regional PCE Plume

4.3.1 Dischargers' Self-Directed Additional Source Investigation

In June and July 2017, rather than implementing a comprehensive step-out investigation strategy to determine the lateral and vertical extent of the PCE plume originating from the Site, the Dischargers' consultants conducted a "self-directed" off-Site groundwater investigation to identify other potential PCE sources contributing to the regional PCE plume in the South Y Area (Figure 13; EKI, 2017)[74]. The investigation consisted of the collection of multi-depth groundwater samples at 19 locations within, adjacent to, and upgradient of the regional PCE plume utilizing high resolution cone penetrometer test (CPT) and membrane interface probe (MIP) technology to identify the depth intervals for sample collection. PCE concentrations in groundwater were detected at 17 of the 19 locations. All of the locations with detections were downgradient from the Site. PCE was also detected in first encountered groundwater at 12 of the 19 locations, at concentrations ranging 0.68 to 33.1 µg/L. The PCE concentrations detected in shallow groundwater can be explained by comparing these detections to the maximum PCE concentration of 72 µg/L detected on-Site in LW-MW-1S on May 2, 2017 (i.e., the PCE concentrations reported in shallow groundwater may also be attributed to the downgradient migration of shallow groundwater PCE contamination from the Site). The investigation did not provide evidence of any source of PCE contamination upgradient of the Site or shallow groundwater "hot spots" within the regional PCE plume that could not be potentially attributed to the Site.

4.3.2 Dischargers' Additional Source Evaluations

The Dischargers' consultants have been unable to identify any potential upgradient sources or PCE plume that migrated onto, and through the Site, before commingling with, or creating, the regional PCE plume identified in the South Y Area. Based on data collected during the June and July 2017 self-directed groundwater investigation (Figure 13)[75] and the March and April 2019 Phase III groundwater investigation (Figure 34)[76], PCE detected in groundwater on-Site represents the most upgradient detection of PCE above the MCL in the South Y Area. In other words, the regional PCE plume originates at the Site, migrates under the influence of horizontal and downward vertical groundwater hydraulic gradients, and cannot be attributed to other upgradient PCE sources.

The Dischargers' investigations into additional PCE sources have also included document reviews (EKI, 2019b, 2019d, 2020a). The Dischargers have summarized and evaluated available information, including the Lahontan Water Board's chemical use questionnaires

[74] Figure 13 shows sample locations and groundwater analytical results for the Dischargers' Self-Directed Source Area Investigation conducted in June and July 2017.
[75] Id.
[76] Figure 34 shows "Phase III" groundwater investigation analytical results.

and hazardous material database records, to identify additional potential sources that could be contributing to the regional PCE plume (Figure 23 and Table 15)[77]. Suppositions of potential additional dischargers have been provided in numerous submissions. In the evaluation of potential dischargers, however, the Dischargers' consultants have not applied consistent source identification criteria. Specifically, the Dischargers' work plan accepted by Lahontan Water Board staff contains source identification criteria (EKI, 2018a).[78] Notably, the Site meets the Dischargers' own source identification criteria, but the Dischargers have elected to ignore this fact and other available groundwater data that does not support the conclusion that other additional sources are contributing to the regional PCE plume. The Dischargers have not applied the accepted source identification criteria consistently to the other potential PCE sources either, resulting in an incomplete and inaccurate analysis of source identification. As discussed above, the CSM must be updated to reflect consistent application of the approved PCE source identification criteria.

The Dischargers have identified the former Big O Tires site as a potential PCE source utilizing the Dischargers' source identification criteria and have elected to prioritize reviewing the investigation results at the former Big O Tires site at the expense of proceeding with any investigation actions such as defining the lateral and vertical extent of PCE contamination originating from the Site. Lahontan Water Board staff have repeatedly reminded the Dischargers that identification of additional potential PCE source does not mean 2017 CAO requirements have been fulfilled and additional work should be identified and implemented to comply with 2017 CAO requirements.

The Dischargers' consultants have not identified or implemented actions to further investigate Tucker Basin as a potential off-Site source. The Dischargers' conclusions regarding preferential pathways, inconsistent use of source identification criteria and selected investigation strategy has resulted in an ongoing and unreasonable delay to investigate PCE contamination in, and potentially beyond, Tucker Basin. Tucker Basin (1) received stormwater runoff from the Site during the release time period, (2) likely received PCE-contaminated stormwater from the Site, (3) historical PCE-contaminated stormwater infiltration into Tucker Basin may be the source of the high concentrations of

[77] Figure 23 shows the location of properties with reported or suspected PCE use identified by the Dischargers.
Table 15 provides a review of the Dischargers' known or potential PCE sources.

[78] Source identification criteria as described in the March 19, 2018 *Amended Groundwater Investigation Work Plan*:

- Site-specific information such as chemical use inventories, disposal records, soil samples with detections of VOCs, and/or elevated VOC concentrations in soil gas samples;
- Site use history commonly associated with PCE applications, such as dry cleaning or degreasing metal parts in conjunction with automotive and other metalworking operations;
- VOC concentrations in groundwater samples collected from locations downgradient of the potential source are significantly higher than VOC concentrations in groundwater samples collected in the same hydrogeological unit from locations upgradient of the potential source;
- Elevated VOC concentrations in samples of first-encountered shallow groundwater collected from locations downgradient of the potential source; and
- Concentrations of VOCs in groundwater samples collected from locations downgradient of the potential source that suggest the presence of dense non-aqueous phase liquid ("DNAPL").

PCE detected to the north of Lake Tahoe Boulevard and on the former Big O Tires site and (4) meets accepted source identification criteria.

Previous investigations conducted at the Lakeside Napa site (SECOR, 2004) had identified elevated PCE concentrations in shallow and middle zone groundwater (Figure 42 and Figure 43)[79], however the investigations were not sufficient to evaluate if discharges had occurred at the Lakeside Napa site and were contributing to the regional PCE plume. In 2019, EKI/PES conducted passive soil vapor sampling at interior and exterior locations at the Lakeside Napa site in addition to groundwater sample collection along Glorene Avenue to evaluate the Lakeside Napa site's potential contribution to the regional PCE plume. No indications of potential PCE discharges at the Lakeside Napa site were identified during the passive soil vapor and groundwater sampling activities (Figure 37)[80]. The investigation results indicate 1) significant reductions in PCE concentrations in groundwater from the data collected in 2002 and 2003 and 2) uniform low to non-detect PCE masses (indicative of regional PCE plume/background concentrations) in soil vapor across the Site. In the April 2019 ISR, EKI concluded the lack of spatial variability in soil vapor and rapid attenuation of groundwater concentrations support the absence of potential remaining sources. EKI speculated that historical pumping at Clement Well (located to the west) shifted the groundwater flow direction and gradients toward the Clement Well to the west during times of well operation. EKI also speculated that stormwater infiltration at Tucker Basin created radial (e.g., groundwater flowed radially in all directions as a result of the infiltrated groundwater "mound") groundwater flow directions and gradients in shallow groundwater around Tucker Basin during periods of stormwater infiltration to groundwater. These shifts in groundwater flow directions and gradients help explain the elevated PCE concentrations previously detected within the shallow and middle zones in the vicinity of the Lakeside Napa site. Lahontan Water Board ultimately issued a No Further Action Required letter to the Lakeside Napa site on August 11, 2020.

4.3.3 Lahontan Water Board's Evaluation of Additional Potential PCE Sources

Lahontan Water Board staff's evaluation of additional potential responsible parties contributing to the regional PCE plume is ongoing. On April 3, 2019, 223 Water Code section 13267 investigative orders were sent to potential responsible parties identified through records searches for businesses that may have used, stored, handled, or disposed of chlorinated solvents within the estimated regional PCE plume area. The directive required completion of a General Chemical Storage and Use Questionnaire or a Dry Cleaner Specific Questionnaire.

[79] Figure 42 and Figure 43 show PCE concentrations in shallow (Figure 42) and middle (Figure 43) zone groundwater from groundwater investigations conducted at the Site, the ~~Former~~ Big O Tires site, and the Lakeside Napa site between 2001 and 2008.
[80] Figure 37 shows passive soil vapor and groundwater sampling results for the Lakeside Napa site in 2019.

SCAP Regional PCE Plume Investigation included the development of an inventory of potential source areas (Figure 25 and Table 7)[81] contributing to the regional PCE plume, including properties that received Water Code section 13267 investigative orders, and submitted questionnaires. Initial review of groundwater data relative to source area inventory locations, did not indicate any "hot spots" in shallow groundwater that could not be potentially attributed to the Site (Figure 25)[82]. Evaluation of potential sources areas is expected to continue to support contract task implementation until contract completion in 2023.

On May 10, 2019, Water Code section 13267 investigative directives were sent to the ~~former~~ Big O Tires (1961 Lake Tahoe Boulevard; Lahontan, 2019a~~)~~) and Former Norma's Cleaners (formerly Hurzel Properties, LLC [961 Emerald Bay; Lahontan, 2019a]) sites. Although initial investigation work has been conducted at both sites, the work completed to date does not comply with the investigative directives and additional work is required.

Initial passive soil vapor sampling activities were conducted at the ~~former~~ Big O Tires site in September/October 2020 (Figure 39; WHA, 2020b)[83]. Additional investigation of soil and shallow groundwater have been proposed at the ~~former~~ Big O Tires site. The proposed work does not include evaluation of PCE contamination in Tucker Basin. Lahontan Water Board staff have determined that the proposed scope of work is inadequate and will not provide the data necessary to evaluate if PCE contamination detected at the ~~former~~ Big O Tires site is contributing to the regional PCE plume. A Notice of Violation, including comments identifying remaining data gaps and work plan deficiencies, was sent to the responsible parties for the ~~former~~ Big O Tires site on April 15, 2021 and August 13, 2021. A work plan compliant with May 10, 2019 directives for the ~~Former~~ Big O Tires site has not been submitted to date.

Initial passive soil vapor sampling activities were conducted at the Former Norma's Cleaners (formerly Hurzel Properties, LLC) site in December 2020 (Figure 44; RMC, 2021)[84]. No additional investigation activities were proposed following the initial passive soil vapor sampling. A Notice of Violation, including comments identifying remaining work plan deficiencies, was sent to the Former Norma's Cleaners site~~former Hurzel Properties LLC~~ on April 15, 2021. Additional investigation has been proposed at the Former Norma's Cleaners ~~former Hurzel Properties, LLC~~ site. Lahontan Water Board staff have determined that the proposed scope of work is deficient and will not provide the data necessary to evaluate if PCE contamination detected at the ~~former Hurzel Properties, LLC~~Former Norma's Cleaners site is contributing to the regional PCE plume. A work plan compliant with the May 2019 Order for the ~~former Hurzel Properties, LLC~~Former Norma's Cleaners site has not been submitted to date.

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[81] Figure 25 and Table 7 illustrate and provide the prioritized inventory of potential source areas developed for the SCAP Regional Plume Investigation. Figure 25 displays the prioritized inventory relative to the estimated shallow regional PCE plume.
[82] Figure 25 shows the PCE "hot spot" identified in shallow groundwater originating at the Site.
[83] Figure 39 shows the distribution of PCE mass in soil vapor at the Former Big O Tire site.
[84] Figure 44 shows PCE concentrations in soil vapor at the Former Norma's Cleaners (formerly Hurzel Properties, LLC [~~(~~961 Emerald Bay]~~)~~) site.

Proceeding with the current Order is consistent with State Water Board Resolution 92-49, which states that "[i]t is not necessary to identify all dischargers for the Regional Water Board to proceed with requirements for a discharger to investigate and clean up." It is also consistent with the El Dorado Superior Court's finding that "it would be irrational to delay investigation, abatement, and cleanup of the Site, which would allow contaminates above the maximum contaminate level to remain the groundwater and migrate." (December 8, 2020 Minute Order, p. 64.)

5 SCREENING EVALUATION AND CONCLUSIONS

5.1 Human Health and the Environment Screening Criteria

Lahontan Water Board staff conducted a screening level evaluation of potential human health and environmental concerns related to PCE and PCE degradation by-products such as TCE and cis-1,2 DCE contamination in soil, soil gas, and groundwater. A summary of investigation results and conclusions related to the screening evaluation is provided in the following sections. The presence of PCE (and PCE degradation biproducts) at concentrations in soil, soil gas, and groundwater originating from Site above the ESLs or groundwater MCLs and California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment Public Health Goals (PHGs) supports the conclusion that continued on-Site and off-Site investigations are required and cleanup and abatement is necessary to evaluate and reduce the potential threat contamination poses to human health and the environment.

5.1.1 Soil ESLs

The SF Bay Water Board's ESL guidance document identifies soil screening levels for the following concerns:

1) Leaching to groundwater;
2) Direct exposure;
3) Odor Nuisance; and
4) Terrestrial habitat.

Leaching to groundwater is the primary applicable ESL category for PCE, TCE, and cis-1,2 DCE in soil to be utilized at the Site.

5.1.2 Soil Gas ESLs

The SF Bay Water Board's ESL guidance document identifies soil gas screening levels for the following concerns:

1) Sub-slab/soil gas vapor intrusion and
2) Indoor air direct exposure.

Indoor air direct exposure is the primary applicable ESL category for PCE, TCE, and cis-1,2 DCE in soil gas to be utilized at the Site.

5.1.3 Groundwater ESLs

The SF Bay Water Board's ESL guidance document identifies groundwater screening levels for the following concerns:

1) Direct Exposure i.e., MCLs (drinking water standards);
2) Groundwater vapor intrusion;
3) Aquatic habitat protection; and
4) Odor nuisance levels.

Groundwater vapor intrusion is the primary applicable ESL category for PCE, TCE, and cis- 1,2 DCE in groundwater to be utilized at the Site. Direct exposure is the secondary applicable ESLs for PCE, TCE, and cis-1,2 DCE in groundwater ESLs to be utilized at the Site. For comparison purposes, CalEPA Office of Environmental Health Hazard Assessment Public Health Goals (PHGs) for direct exposure to PCE, TCE, and cis-1,2 DCE in groundwater are also discussed.

Table 16 below summarizes the primary commercial/industrial ESLs used to evaluate the potential threat to human health and the environment from concentrations of PCE, TCE, and cis- 1,2 DCE present in soil, soil vapor, and groundwater. In addition, MCLs and PHGs for PCE, TCE, and cis- 1,2 DCE are summarized to identify impacts to the MUN beneficial use of groundwater.

Table 16 – ESLs, MCLs, and PHGs for PCE, TCE, and cis-1,2 DCE

Media	PCE	TCE	cis-1,2 DCE	Basis for ESLs
Soil (mg/kg)	0.08	0.08	0.19	Leaching to Groundwater
Groundwater (µg/L)	5	5	6	MCL
	0.06	1.7	13	PHG
	0.64	1.2	49	Groundwater Vapor Intrusion
Soil Vapor (µg/m³)	67	100	1168	Vapor Intrusion
	2	3	35	Indoor Air Direct Exposure

5.2 Summary of Soil Investigation Results and Evaluation

On-Site concentrations of PCE, TCE, and cis-1,2 DCE in soil and utility backfill has been detected at concentrations that exceed soil ESLs for the protection of human health and beneficial uses of groundwater (Figure 9, Table 14, and Table 18)[85]. Table 17 below summarizes the maximum concentrations of PCE, TCE, and cis- 1,2 DCE detected in on-Site soil and utility backfill relative to the leaching to groundwater ESL.

[85] Figure 9, Table 14 (2004), and Table 18 (2005) illustrate and summarize PCE concentrations in soil reported during initial soil and groundwater investigation conducted between 2003 and 2005. PCE concentrations in soil above 0.08 mg/kg exceed the leaching to groundwater ESL and locations have been highlighted blue on Figure 9.

Table 17 – Maximum Concentrations of PCE, TCE, and cis- 1,2 DCE Detected in On-Site Soil and Utility Backfill

COCs	Leaching to Groundwater ESL (mg/kg)	Maximum Soil (mg/kg)	Maximum Utility Backfill (mg/kg)	Location[86]
PCE	0.08	**532**	**0.106**	See Figure 9 and Figure 10 for historical soil sampling locations. See Figure 11 for utility backfill sampling locations.
TCE	0.08	**17**	0.00179	
cis-1,2 DCE	0.19	**0.71**	0.00151	

1) The leaching to groundwater ESL for PCE listed in SF Bay Water Board's ESL Guidance document and shown in Table 16 above was developed to indicate the PCE concentration threshold where PCE is expected to leach from soil into groundwater. Soil contamination may also contaminate groundwater when seasonally shallow groundwater is in direct contact with contaminated soil.

2) During 2004 and 2005 on-Site soil investigations, 25 soil borings were advanced, and 77 soil samples were collected to depths up to 12 feet bgs. PCE was reported in 21 of the 25 borings. PCE was detected above the leaching to groundwater ESL in 30 soil samples in an area extending from the Site's front entrance to approximately 80 feet to the northwest, 80 feet to the north, and 80 feet to the northeast (Figure 9, Table 14, Table 18) [87].

3) Of the 125 total soil samples collected from the Site investigations to date, PCE has been detected in soil above the leaching to groundwater ESL in 48 samples collected. 42 of these 48 samples were collected at depths within the range of historical groundwater elevations (i.e., at depths where soil was in contact with groundwater) and to depths up to 38 feet bgs on-Site in LW-MW-1D and to depths up to 45.5 feet bgs off-Site in LW-MW-4D (Figure 14, Figure 45, Table 14, Table 18, Table 19, Table 20, Table 21, Table 22, and Table 25)[88].

[86] Figure 10, Table 20 and Table 21 illustrate and summarize PCE concentrations in soil reported during on and off-Site monitoring well installations.
Figure 11 and Table 22 illustrate and summarize PCE concentrations in soil reported within stormwater conveyance system utility trench and sanitary sewer utility trench backfill.

[87] Figure 9 shows historical soil sample locations for the 2004 and 2005 on-Site soil and groundwater investigations. PCE concentrations in soil above 0.08 mg/kg exceed the leaching to groundwater ESL and have been highlighted on Figure 9.

[88] Figure 45 provides a cross section of the Site and illustrates PCE contamination in soil relative to the water table (i.e., PCE concentrations in soil above leaching to groundwater ESLs are below the water table and available for contaminant transport).
Table 14, Table 18, Table 19, Table 20, Table 21, and Table 22 summarize the soil data that has been collected at the Site. PCE concentrations in soil above 0.08 mg/kg exceed the leaching to groundwater

4) The evidence supports the conclusion that on-Site PCE discharge volumes and/or mechanisms were sufficient to cause widespread exceedances of the leaching to groundwater soil ESL within soil (i.e., release volumes were sufficient to penetrate the unsaturated zone to groundwater). Soil contamination has also been in direct contact with seasonally shallow groundwater, resulting in further groundwater contamination. The on and off-Site soil contamination has resulted in the distribution of PCE contamination in groundwater.

5) Soil investigations conducted to date demonstrate that PCE discharges occurred at the northwest corner of the South Y Shopping Center in front of the Site's entrance where solvent deliveries occurred, near the Site's western storm water conveyance system drop inlet, and inside the building near the DCU (Figure 9)[89]. The on-Site PCE discharges were sufficient to penetrate the unsaturated zone and cause exceedances of soil ESLs to depths up to 38 feet bgs on-Site. Soil contamination has also been in direct contact with seasonally shallow groundwater, resulting in further groundwater contamination.

6) The maximum detection of PCE in soil (532 mg/kg, LW-MW-1-7 [410 mg/kg reported in sample sent to Friedman and Bruya, Inc.]) was found in the northern parking area near the location where solvent deliveries occurred. The paved parking lot surface, installed in approximately 1974, has been graded to convey stormwater, (and any solids, liquids, and dissolved constituents conveyed by the stormwater), to the stormwater system conveyance drop inlets in the northwest and northeast portions of the Site, near the location where the highest concentrations of PCE in soil are detected (Figure 10)[90].

7) The maximum PCE concentration detected in soil on-Site was reported at a depth of 7 feet bgs which is within the range of historical groundwater elevations and is above the 170 mg/kg Site specific estimated dense non-aqueous phase liquid (DNAPL[91]) partitioning threshold (i.e., the lowest PCE concentration in soil at which DNAPL would be expected to be found).

ESL. Soil samples collected below 2 feet bgs are within the range of historical groundwater elevations reported at the Site.
Table 25 provides a summary of the historical groundwater elevations reported in on-Site and off-Site monitoring wells from 2008 through 1st Quarter 2021 and indicates groundwater elevations have been as shallow as approximately 2 feet bgs.

[89] Figure 9 shows the distribution of PCE concentrations in soil at the Site, including beneath the tenant space and within the northern parking lot.

[90] Figure 10 shows the location of the LW-MW-1S/D well pair where the maximum PCE concentration in soil was reported and the well pair location relative to the Site's western stormwater conveyance drop inlet in the northern parking lot.

[91] DNAPLs such as chlorinated solvents, represent a particular class of soil and groundwater contaminant that exist as a separate liquid phase in the presence of water and have a specific gravity greater than water (i.e., will sink). Given the chemical and physical properties (e.g., specific gravity, solubility, vapor phase pressure, etc.) of the DNAPL (i.e., PCE), a ground surface release can give rise to long term contamination, of both the unsaturated (vapor) and saturated (groundwater) zones, that persist in the environment for decades to hundreds of years left unaddressed.

8) PCE was detected in soil samples collected from the temporary wells installed in Lake Tahoe Boulevard downgradient from the Site (between the Site and Tucker Basin). The maximum concentration of PCE in soil (0.820 mg/kg) was detected in LW-MW-7D from 40.5 feet bgs. No step out samples were taken, indicating that lateral and vertical delineation of PCE in soil from on-Site waste discharges is incomplete (Figure 10)[92].

9) PCE in soil was detected beneath the stormwater system and sanitary sewer conveyance lines in utility trench backfill at a maximum concentration of 0.106 mg/kg and 0.0018 mg/kg, respectively (Figure 11 and Table 22)[93]. The detections of PCE in soil within utility backfill provide additional lines of evidence to support the conclusion that on-Site discharges to the stormwater conveyance and sanitary sewer systems occurred.

10) Soil investigations have not been conducted to evaluate the magnitude and extent of contaminant transport to, and downgradient of, Tucker Basin.

11) No confirmation soil sampling has been conducted in areas within the influence of the operating AS/SVE system or on-Site areas with identified soil contamination above the leaching to groundwater ESL (e.g., soil contamination beneath the existing building or along utility corridors). The evaluation of potential threat to groundwater quality and indoor air posed by the remaining soil contamination is incomplete.

5.3 Summary of Soil Vapor Investigation Results and Evaluation

On-Site concentrations of PCE, TCE, and cis-1,2 DCE in soil vapor have been detected at concentrations that exceed the vapor intrusion ESLs for protection of human health. Table 23 below summarizes the historic and current maximum concentrations of the PCE, TCE, and cis-1,2 DCE detected in soil vapor at the Site.

Table 23 – Maximum Concentrations of PCE, TCE, and cis-1,2 DCE Detected in On-Site Soil Vapor

COCs	Vapor Intrusion ESL (µg/m³)	Indoor Air ESL (µg/m³)	Maximum (µg/m³)	Recent[94] (µg/m³)	Location
PCE	67	2	**8,136,000**	**24,000**	See Figure 12 for soil vapor sampling locations.
TCE	100	3	**44,571**	**130**	
cis-1,2 DCE	1200	35	**102,960**	44	

[92] Figure 10 shows the location of monitoring well LW-MW-7D and associated soil analytical results.
[93] Figure 11 and Table 22 illustrate and summarize soil analytical results from stormwater conveyance system and sanitary sewer backfill.
[94] "Recent" is data collected in September 2021 for Third Quarter 2021 reporting.

1) Recent[95] detections of PCE in soil vapor exceed the vapor intrusion ESL (Figure 12 and Table 1)[96]. The recent soil vapor data indicates that on-Site contamination still poses a threat to human health and demonstrates that additional actions are needed to (1) delineate the extent of the on- and off-Site soil vapor plume, (2) evaluate the potential vapor intrusion risk to buildings adjacent to and overlying areas with remaining contamination identified (e.g. existing on-Site building), including off-Site areas (e.g. Tucker Basin), (3) evaluate the potential vapor intrusion risk to buildings overlying the groundwater contaminant plume, and (4) evaluate if mitigation measures will be needed following AS/SVE system cessation.

2) The current maximum PCE, TCE, and cis-1,2 DCE concentrations in soil vapor at the Site exceeds the vapor intrusion and direct exposure ESLs (Figure 12 and Table 1)[97]. The maximum PCE concentrations in soil vapor were reported in soil vapor probe VP-2, located adjacent to the northwest stormwater conveyance system drop inlet and monitoring well pair LW-MW-1S/D (Figure 12)[98]. The maximum PCE and TCE concentrations in soil vapor were reported more than seven years after the remediation system had been in operation indicating that significant contamination was present prior to remedial implementation, and that significant residual PCE contamination remains on-Site.

3) On-Site soil vapor probes (VP-5, VP-6, and VP-9) located directly adjacent to the existing building have shown PCE and TCE concentrations that exceed the vapor intrusion and direct exposure ESLs (Figure 12 and Table 1)[99]. Maximum PCE (128,820 µg/m^3) and TCE (1,074 µg/m^3) concentrations were reported in VP-5 as recently as June 2018 (i.e., after eight years of AS/SVE system operation), indicating that additional evaluation of potential threat to human health is warranted.

4) The extent of soil vapor above ESLs remains undefined in the northwestern portion of the Site. Soil vapor probe VP-3, located near the northern property boundary,

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[95] Id.

[96] Figure 12 shows the location of the soil vapor probe monitoring well network. Recent and maximum concentrations of PCE and TCE in soil vapor are shown in annotated tables. PCE concentrations above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL. Table 1 provides a summary of the soil vapor analytical data collected at the Site. Concentrations above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL.

[97] Figure 12 and Table 1 illustrate and summarize soil vapor analytical results collected from vapor probes installed in the northern parking lot area during quarterly monitoring events. PCE concentrations in soil vapor above 67 µg/m^3 and 2 µg/m^3 exceed the vapor intrusion to indoor air and direct exposure ESLs, respectively.

[98] Figure 12 shows the location of soil vapor probe VP-2 relative to monitoring well pair LW-MW-S/D and the western the stormwater conveyance system drop inlet in the northern parking lot.

[99] Figure 12 and Table 1 illustrate and summarize soil vapor analytical results collected from vapor probes installed in the northern parking lot area, including vapor probes VP-5, VP-6, and VP-9 (near the building), during quarterly monitoring events relative to the existing building. PCE concentrations in soil vapor above 67 µg/m^3 exceed the vapor intrusion to indoor air ESL. The figure shows the monitoring network is not capable of delineating the extent of PCE in soil vapor from on-Site discharges.

regularly reports PCE concentrations in soil vapor above vapor intrusion and indoor air ESLs (Figure 12 and Table 1)[100]. A maximum concentration of 881,400 µg/m^3 PCE was reported during the June 2018 sampling event (i.e., after eight years of AS/SVE system operation). Additional evaluation of the extent of soil vapor concentrations above ESLs and the potential threat to human health is needed to support design and implementation of interim and final remedial actions.

5) No indoor air sampling events have been conducted at the Site to evaluate site conditions when temporary mitigation measures are not in place (i.e., when the AS/SVE system is not being operated). Soil vapor probes have shown significant variability in PCE, TCE, and cis-1,2 DCE concentrations. Soil vapor point VP-2 has reported the maximum on-Site PCE concentration and has ranged from 8,131,600 µg/m^3 (2017) to 0.64 µg/m^3 (2015) since installation. The range of PCE concentrations in soil vapor suggests significant temporal and seasonal variability. Indoor air sampling conducted in July (Figure 30 and Table 12)[101] and December 2015 (Figure 31 and Table 13)[102] reported detectable PCE concentrations (all below the indoor air ESL) in 11 of the 12 samples collected within the four tenant spaces sampled demonstrating residual PCE mass poses a potential threat to human health. Verification indoor air sampling will be needed following cessation of AS/SVE operation (AS/SVE remediation system was operating during the July and December 2015 indoor air sampling events) to evaluate potential risk from the direct contact and vapor intrusion exposure pathways and to support recommendations about remedial actions and mitigation measures.

5.4 Summary of Groundwater Investigation Results and Evaluation

On-Site concentrations of PCE, TCE, and cis- 1,2 DCE in groundwater vapor have been detected at concentrations that exceed the ESLs for protection of human health. Table 24 below summarizes the historic and current maximum concentrations of the PCE, TCE, and cis- 1,2 DCE in groundwater at the Site.

Table 24 – Maximum Concentrations of PCE, TCE, and cis-1,2 DCE Detected in On-Site Groundwater

COCs	MCL (µg/L)	Maximum (µg/L)	Recent[103] (µg/L)	Location
PCE	5	**5,380**	**200**	See Figure 22 for groundwater sampling locations.
TCE	5	**28.1**	**7.80**	
cis-1,2 DCE	6	**29.0**	1.50	

[100] Id.
[101] Figure 30 illustrates sample locations during the July 2015 indoor air sampling event.
[102] Figure 31 illustrates sample locations during the December 2015 indoor air sampling event.
[103] "Recent" is data collected in September 2021 for Third Quarter 2021 reporting.

1) The Dischargers' groundwater investigations have not defined the full lateral and vertical extent of contamination originating from the Site. No step out groundwater sampling has been performed downgradient of Tucker Avenue following the Phase II groundwater investigation (Figure 13)[104] or in areas downgradient of the off-Site monitoring wells (Figure 2)[105]. Off-Site well pairs, OS-3 (Roger Avenue) and OS-4 (James Avenue), are located approximately 1,000 feet from the Site and represent the most downgradient areas investigated relative to 2017 CAO requirements. The Dischargers' groundwater investigations have not included data collection below 80 feet bgs. During the SCAP Regional PCE Investigation, ~~contiguous~~ PCE contamination originating from the Site was found to extend, without interruption, approximately a mile from the Site to depths up to approximately 2040 feet bgs (Figure 4 and Figure 5)[106].

2) Historic and recent concentrations of COCs in groundwater at the Site exceed MCLs designed to protect human health and the environment. The highest historical maximum concentrations of COCs have been detected in shallow and middle zone groundwater monitoring well pair LW-MW-1S/D, located in the northwest corner of the Site near the stormwater system conveyance drop inlet.

3) PCE concentrations up to 5,150 µg/L were reported in groundwater monitoring well LW-MW-1S prior to remedial implementation and have ranged between 5,380 µg/L and 1.5 µg/L during AS/SVE remediation system operation. The PCE concentrations reported in LW-MW-1S are the highest concentrations reported within the entire regional PCE plume. LW-MW-1D was not regularly monitored prior to the 2017 CAO but was added to the quarterly monitoring following 2017 CAO issuance. From May 2017 to September 2020, PCE concentrations ranged between 9.2 µg/L and 430 µg/L in LW-MW-1D; LW-MW-1D is located outside the influence of the AS/SVE system (Figure 22 and Table 2)[107].

4) The maximum historical concentrations of PCE detected in groundwater exceed the MCL by multiple orders of magnitude (Figure 22 and Table 2)[108]. The PCE concentrations above 2,000 µg/L reported during quarterly monitoring indicate that DNAPL was likely present on-Site prior to, and during AS/SVE remediation system operation. The highest PCE concentrations detected in this on-Site monitoring well LW-MW-1S, and the related likely presence of PCE DNAPL on-Site, confirms the identification of the Site as a source of shallow and middle zone groundwater PCE contamination.

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[104] Figure 13 illustrates the location of Transect 2 (orange dots).
[105] Figure 2 shows the location of off-Site monitoring well pairs OS-2 through OS-4.
[106] Figure 4 and Figure 5 shows the estimated vertical extent (Figure 5) of the regional PCE plume from the Site to the Tahoe Keys along transect A-A' (Figure 4).
[107] Figure 22 shows the historic and recent PCE concentrations reported in the on- and off-Site monitoring well network and the sampling dates are shown in annotated tables.
Table 2 provides a summary of groundwater analytical results from the quarterly monitoring program conducted at the Site.
[108] Id.

5) Groundwater data indicate that the on-Site PCE contamination (DNAPL, soil vapor, and soil) had partitioned into groundwater and was transported off-Site at concentrations above the MCL in the shallow and middle zones prior to and during interim remedial action implementation (2010) as discussed below. This PCE contamination was not remediated and continues to migrate off-Site unabated.

6) In 2008 (i.e., prior to interim remedial action implementation), PCE was detected above the MCL in six of the eight temporary, dual-zone monitoring wells installed with concentrations up to 137 µg/L (LW-MW-1D) reported on-Site and up to 100 µg/L (LW-MW-4D) downgradient from the Site within Lake Tahoe Boulevard and upgradient from Tucker Basin (Figure 16 and Figure 17)[109].

7) Quarterly groundwater monitoring during active remediation has consistently shown PCE concentrations above the MCL in shallow zone groundwater monitoring wells located along the northern (i.e., downgradient of AS/SVE area) property boundary; the shallow zone's groundwater flow direction is generally towards the north-northeast property boundary (Figure 32)[110]. The maximum concentration of PCE detected in these northern property boundary monitoring wells was 1,400 µg/L (shallow zone monitoring well LW-MW-5S in 2010) (Figure 22 and Table 2)[111].

8) The quarterly groundwater monitoring program did not include middle zone wells until 2017 CAO issuance. From 2017 to present, the maximum PCE concentrations in the on-Site and off-Site middle zone well pairs were 430 µg/L (LW-MW-1D) and 1,580 µg/L (OS-2M; located to the north of Tucker Basin), respectively (Figure 22 and Table 2)[112]. Middle zone groundwater is not within the influence of the AS/SVE system and any dissolved phase PCE contamination (i.e., PCE dissolved in and transported with groundwater) would be subject to the local and regional groundwater hydraulic gradients and natural attenuation processes.

9) Recent sampling detected concentrations of PCE in on-Site shallow (MW-5S) and middle (MW-1D) zone wells and off-Site shallow (OS-1) and middle zone (OS-2M, OS-3M, and OS-4M) wells exceeding the MCL, demonstrating that PCE continues to persist and migrate, unabated, in the subsurface (Figure 22 and Table 2)[113] .

[109] Figure 16 and Figure 17 show PCE concentrations in the shallow (Figure 16) and middle (Figure 17) zone groundwater during monitoring well installation in 2008.
[110] Figure 32 illustrates the general groundwater flow direction within the shallow zone based on 23 quarterly monitoring events conducted between 2009 and 2015.
[111] Figure 22 shows the historic and recent PCE concentrations reported in the on- and off-Site monitoring well network and the sampling dates are shown in annotated tables.
Table 2 provides a summary of groundwater analytical results from the quarterly monitoring program conducted at the Site.
[112] Id.
[113] Id.

10) The depth to groundwater ranges from approximately 2 to 19 feet bgs in shallow zone monitoring wells (Table 25)[114]. The reported range of groundwater elevations demonstrate that the majority of on-Site contaminated soil (i.e., soil with contamination above soil ESLs) are, or have been, in direct contact with groundwater. Because the depth to groundwater is shallow, the presence of the PCE beneath the Site is a potential threat to human health via vapor intrusion to indoor air at the Site and in nearby commercial buildings, in addition to the impacts and threats posed to the groundwater pathway (i.e., water supply wells) from the on-Site contamination.

11) Groundwater in the shallow zone has been reported to flow in a northerly direction and has ranged from northeast to northwest (Figure 46 and Figure 32)[115]. Groundwater in the middle zone has been reported to flow in a northerly direction and has ranged from west to northeast (Figure 47)[116]. These estimates of groundwater flow directions are consistent with both the historical range of estimated groundwater flow directions and the orientation of the regional PCE plume.

12) Groundwater flow directions and gradients within the regional PCE plume area have been affected by historical municipal water supply well pumping (Figure 48)[117]. Supply well pumping creates cones of depression and increases groundwater gradients (i.e., increases PCE-contaminated groundwater velocities) toward the pumping wells. Increased PCE velocities (i.e., shorter travel times than general calculations indicate under ambient conditions) within the capture zone of pumping supply wells is to be expected.

13) Groundwater elevation monitoring (Table 25)[118] has confirmed the presence of downward vertical gradients on- and off-Site. The estimate of downward vertical gradients is consistent with the regional PCE plume geometry which shows a "diving" plume (i.e., depth of detected PCE contamination increases with distance away from release area).

14) The SCAP Regional PCE Investigation confirmed a connection between the Site and the regional PCE plume, including downgradient impaired supply wells). The

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[114] Table 25 provides a summary of the depth to water measurements reported during quarterly monitoring.
[115] Figure 46 presents the estimated groundwater flow direction in the shallow zone during recent quarterly monitoring.
Figure 32 illustrates the general groundwater flow direction within the shallow zone based on 23 quarterly monitoring events conducted between 2009 and 2015.
[116] Figure 47 presents the estimated groundwater flow direction in the middle zone during recent quarterly monitoring.
[117] Figure 48 identifies municipal supply wells and source water protection areas. The source water protection areas give indication of the areas potentially affected by historical pumping (i.e., 2-year, 5-year, and 10-year estimated travel times to municipal wells are shown).
[118] Table 25 provides a summary of groundwater elevation measurements conducted during quarterly monitoring events. Differences in groundwater elevations within the same well pairs indicate downward vertical gradients are present (i.e., comparing groundwater elevations between shallow and middle zones in same well pair)

SCAP Regional PCE Investigation collected depth-discrete samples from areas where estimated "data gaps" existed and provide an indication of the general geometry of the regional PCE plume (Figure 3. Figure 4, and Figure 5)[119]. Evaluation of the SCAP investigation results and the Dischargers' off-Site groundwater investigation results (e.g. 2008 temporary well installation)(Figure 16 and Figure 17)[120] and 2019 Phase II groundwater investigation (Figure 13)[121] (within Lake Tahoe Boulevard and Tucker Avenue), including cross sections and isoconcentration maps, show ~~contiguous~~ contamination originating from the Site extends~~ing~~ from the Site to the impaired receptors (Figure 3, Figure 4, and Figure 5)[122], without interruption, and provide "irrefutable"~~a clear~~ demonstration ~~of~~ the Site's~~s~~ is contributing~~on~~ mass to the regional PCE plume and the regional PCE plume in the South Y Area extends , without interruption, to receptors, located as far as a mile away, in the Tahoe Keys .

15) Dischargers' groundwater investigations conducted within Lake Tahoe Boulevard following 2017 CAO issuance (Figure 13)[123] did not target the depths intervals above and below a silt layer previously believed to be limiting downward migration and located at approximately 30 feet bgs (i.e., between the shallow [~10-25 feet bgs] and middle [~40-50 feet bgs] zone screen intervals). Continuous logging of boring SB-1 showed "fine grained sandy silt layers about 1 foot thick were encountered between 34 and 40 feet bgs" (Figure 49)[124]. No depth-discrete groundwater samples were collected between the depths of 26 to 38 feet bgs within Lake Tahoe Boulevard. The evaluation of potential contaminant transport between the shallow and middle zones is incomplete.

16) The maximum concentrations of PCE and PCE degradation by-products, TCE and cis-1,2 DCE, found in off-Site groundwater (i.e., the regional PCE plume) during the Dischargers' investigations following 2017 CAO issuance, are 1,680 µg/L (CPT-GW-11), 49.5 µg/L (CPT-GW-11), and 37.2 µg/L (OS-2M)), respectively.

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[119] Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 4 displays the estimated lateral extent of the regional PCE plume and the location of cross section line A-A' that extends from the Site north to Tahoe Keys.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.

[120] Figure 16 and Figure 17 show PCE concentrations in shallow (Figure 16) and middle (Figure 17) zone groundwater during monitoring well installations in 2008.

[121] Figure 13 shows PCE concentrations in groundwater within the two transects advanced down-gradient of the Site. Also included in the figure are the PCE concentrations in groundwater from the Dischargers Self Directed Source Area Investigation in June and July 2017.

[122] Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 4 displays the estimated lateral extent of the regional PCE plume and the location of cross section line A-A' that extends from the Site north to Tahoe Keys.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.

[123] Figure 13 shows the location and depths of groundwater samples collected within the two transects advanced by the Dischargers down-gradient of the Site.

[124] Figure 49 contains the log of boring LTLW SB-1.

CPT-GW-11 and OS-2M (Figure 2)[125] are located immediately north of the Tucker Basin and within 500 feet of the Site. Tucker Basin and the former Big O Tires site are the only identified potential sources between the Site and the boring and monitoring well locations. Regardless of the potential contribution of any additional sources, the concentrations are lower than the maximum PCE concentrations detected on-Site (Table 2 and Figure 22)[126] and illustrates a concentration gradient from the Site to the regional plume (i.e., the highest PCE concentrations within the regional PCE plume are reported at the Site and these concentrations decrease with distance from the Site).

17) Available groundwater data does not indicate PCE concentrations above MCLs in any of the investigated areas considered to be upgradient of the Site (Figure 13 and Figure 34)[127] and does not provide any indication of potential upgradient sources to the Site. The Site is the origin of the regional PCE plume.

6 REMEDIAL ACTIONS CONDUCTED AND OBSERVATIONS

6.1 Remedial Actions Conducted

The following source removal activities have been conducted at the Site from 2010 to the present:

1) In April 2010, an AS/SVE system began operation at the Site to remediate PCE and PCE degradation by-products such as TCE and cis-1,2 DCE in soil and shallow groundwater within the ~~predefined~~ "source zone area" at the Site (Figure 20 and Figure 21; E_2C, 2010)[128]. An estimated mass of approximately 982 pounds of volitale organic compounds (VOCs) has been removed by the currently operating AS/SVE system to date (Table 26; PES 2021).

2) In September and October 2017, six batch pumping events were performed on shallow zone monitoring wells LW-MW-1S and LW-MW-5S (Figure 2; E_2C, 2017)[129] to evaluate additional remedial options to remove on-Site PCE contamination. A total of 3,850 gallons of PCE-affected groundwater was removed (2,800 gallons from LW-MW-1S and 1,050 gallons from LW-MW-5S). The largest reduction in PCE concentrations was observed in middle zone monitoring well

[125] Figure 2 and Figure 13 show the locations of boring CPT-GW-11 (Figure 13) and monitoring well OS-2M (Figure 2).
[126] Figure 22 shows the historic and recent PCE concentrations reported in the on- and off-Site monitoring well network and the sampling dates are shown in annotated tables.
Table 2 provides a summary of groundwater analytical results from the quarterly monitoring program conducted at the Site. The maximum PCE concentration reported was 5,380 in LW-MW-1S on May 11, 2011. This is the highest PCE concentration reported in the regional PCE plume.
[127] Figure 13 and Figure 34 show PCE concentrations in groundwater during the Dischargers "Phase III" (Figure 34) and Self-Directed Source Area Investigation (Figure 13).
[128] Figure 20 and Figure 21 show the approximate lateral extent of the soil and shallow groundwater cleanup areas (Figure 20) and AS/SVE system wells relative to soil vapor and groundwater monitoring well locations (Figure 21).
[129] Figure 2 shows the location of LW-MW-1S and LW-MW-5S.

MW-LW-1D, which decreased from 210 µg/L on September 27, 2017 to 7.3 µg/L on November 3, 2017. No additional batch pumping activities were performed because Lahontan Water Board staff expressed concerns that batch pumping activities could affect the results of the upcoming January 2018 Phase I off-Site groundwater investigation (Figure 8)[130] (i.e., continued batch pumping could decrease PCE concentrations in off-Site groundwater and investigation results may not be representative). The Dischargers' consultants concluded batch pumping is feasible to remove on-Site PCE from groundwater based on the monitoring results conducted.

6.2 Remedial Action Observations

Remedial actions were not implemented in an appropriate timeframe to effectively mitigate the lateral and vertical migration of PCE contamination from the Site. Remedial actions were implemented approximately 30 years after the estimated initial discharge(s) of waste to the environment. Once implemented, the remedial actions were only designed to remediate on-Site vadose zone soils and shallow zone groundwater contamination within a predefined "source area zone", approximately 375 feet (length) by 145 feet (width) by 30 feet deep, through volatilization and recovery (Figure 20, Figure 50, and Table 6)[131]. The AS/SVE system is not capable of remediating contamination outside this zone, including off-Site groundwater contamination that has migrated downgradient of Lake Tahoe Boulevard (i.e., the downgradient lateral limit of the AS/SVE system's zone of influence), and at depths below the influence of the air sparge wells (i.e., the vertical limit of the AS/SVE system's zone of influence).

PCE contamination has been detected above the MCL at locations immediately downgradient of the Site. Groundwater data indicates that PCE contamination continues to migrate off-Site in areas both within, and beyond, the limits of AS/SVE system's horizontal zone of influence (Figure 50)[132].

Portions of the Site with on-Site PCE contamination in soil detected above the leaching to groundwater ESL (Figure 9)[133] have not been excavated (i.e., removed) or completely delineated, and no evaluation (i.e., confirmation soil sampling) has been conducted by the Dischargers since AS/SVE remedial system commencement. Additional investigation is required to assess current concentrations of PCE in on-Site soil and to delineate the extent of PCE in soil from on-Site waste discharges. However, the AS/SVE system that has been installed and operated is expected to have significant benefit in reducing PCE contamination concentrations in on-Site soil as evidenced by the 982 pounds of VOCs

[130] Figure 8 shows PCE concentrations in groundwater during the "Phase I" investigation.
[131] Figure 20, Figure 50 and Table 6 show the approximate lateral extent of the soil and shallow groundwater cleanup areas (Figure 20), the radius of influence of the air sparge system (Figure 50), and the depths of the air sparge wells (Table 6; AS-1 through AS-27).
[132] Figure 50 shows the estimated radius of influence of the air sparge system.
[133] Figure 9 shows where PCE in soil has been detected at concentrations above the leaching to groundwater ESL.

removed by the AS/SVE system (Table 26)[134]. Even so, the AS/SVE system operation has not successfully remediated on-Site PCE contamination such that recent PCE detections in on-Site and off-Site groundwater and soil vapor are below the PCE MCL of 5 µg/L or the 67 µg/m^3 ESL for vapor intrusion, respectively. This observation is supported by the recent detections of PCE above the MCL in groundwater migrating off-Site (Figure 22)[135] and the PCE concentrations in on-Site soil vapor above ESL for vapor intrusion (Figure 12)[136]. Despite 10 years of AS/SVE system operation, on-Site PCE contamination continues to be a threat to the beneficial use of groundwater and may also represent a threat to human health via the vapor intrusion to indoor air pathway.

Remediation system monitoring show mass removal rates are decreasing; approximately 5 pounds of PCE mass was removed between January and October 2021 (Table 26)[137]. Due to declining AS/SVE system performance, and known residual mass at the Site, the Dischargers must evaluate other remedial options to enhance contaminant mass removal such as chemical oxidation and batch pumping.

Additional on- and off-Site remedial actions are necessary to clean up soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater. A feasibility study and remedial action plan are required. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," and Resolution 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," apply to the Site and require groundwater cleanup of PCE and PCE degradation by-products to background concentrations (i.e., non-detect)

7 SUMMARY OF RECEPTOR IMPACTS

Municipal, small community system (SCS), and domestic supply wells (collectively referred to as supply wells) in the South Y Area have been taken off-line, destroyed, or require wellhead treatment to remove PCE from groundwater prior to distribution while many others remain threatened by the regional PCE plume (Figure 18 and Figure 26)[138].

[134] Table 26 provides a summary of the pounds of contaminants [cumulative VOCs extracted) removed by the AS/SVE system.
[135] Figure 22 shows the distribution of PCE concentration in shallow and middle zone groundwater recently reported during quarterly groundwater monitoring for the Site.
[136] Figure 12 shows the distribution of PCE concentration in soil vapor recently reported during quarterly soil vapor monitoring for the Site.
[137] Table 26 shows PCE mass removal rates (VOCs Extracted) for the AS/SVE system.
[138] Figure 26 displays a recent snapshot of the approximate lateral extent of the regional PCE plume and locations of the supply wells in the South Y Area as of September 2020 (e.g., following completion of SCAP Regional PCE Investigation field investigation).
Figure 18 illustrates the approximate lateral extent of the regional PCE plume and identifies:

- Impairment/impacts to municipal supply wells over time;
- Date/concentration when PCE was first detected above the MCL (if applicable);
- Date/concentration when maximum PCE concentration was detected in municipal supply well;
- Date/concentration from the most recent sampling event; and

The following terms and definitions were established to complete the receptor evaluation presented in Table 8.

- Impaired indicates PCE has been detected in the supply well at a concentration that exceeds the MCL.

- Impacted indicates PCE has been detected in the supply well at a concentration above the reporting limit and below the MCL.

- Threatened indicates PCE has not been detected in the supply well above the reporting limit and supply well is located within the estimated lateral extent of the 0.5 µg/L isocontour of the South "Y" PCE Plume or 3,000 feet downgradient/cross gradient from the estimated lateral extent of the 0.5 µg/L isocontour of the regional PCE plume.

- Threatened/Potential Receptor indicates the supply well has not been sampled for PCE but well is located within the lateral extent of the 0.5 µg/L isocontour of the regional PCE plume.

- Threatened/Potential Future Receptor indicates the supply well has not been sampled for PCE and well is located within 3,000 feet downgradient/cross gradient from the estimated lateral extent of the 0.5 µg/L isocontour of the regional PCE plume.

The following section summarizes impacts to receptors located within, or in proximity to, the regional PCE plume and provides a chronology of impairment/impacts to the supply wells in the South Y Area.

7.1 Municipal Water Supply Wells

Municipal supply wells spanning three water districts (Figure 51)[139] have been impaired, impacted, or remain threatened by the regional PCE plume. As a result, impaired supply wells have been removed from service, have been destroyed, or require wellhead treatment to remove PCE from groundwater prior to use for the municipal water supply. The three water districts include the District, LBWC and TKWC.

PCE contamination was first discovered in municipal supply wells in 1989 (Figure 18 and Table 8)[140], after public water systems were required to test for VOCs. Three municipal supply wells initially showed impairment: LBWC #3, LBWC #4 (owned by LBWC) and Julie (owned by the District). In 1991, the District's Clement well became impaired. In

- Current status of municipal well (active, active with well head treatment, inactive, or destroyed).

[139] Figure 51 shows the three water district boundaries and select municipal supply wells within the jurisdictions.

[140] Figure 18 provides a summary of PCE concentrations and operation status of the municipal supply wells within and adjacent to the regional PCE plume. Table 8 summarizes municipal supply wells within and adjacent to the regional PCE plume.

2002, TKWC #2 became impaired (owned by TKWC). In 2014, LBWC#2 and LBWC #5 (owned by LBWC) became impaired. The timing of municipal wells impairment downgradient from the Site provides indication of the regional PCE plume's migration over time.

7.1.1 LBWC

LBWC historically operated five municipal supply wells to serve approximately 975 customers and provide community fire protection.

1) LWBC #1: This well is active and threatened by the northwestern portion of the regional PCE plume.

2) LWBC #2: This well was impaired by the regional PCE plume in 2014, removed from service and destroyed in 2020.

3) LWBC #3: This well was first determined to be impaired by the regional PCE plume in 1989 (first time well was sampled for PCE) and was removed from service and destroyed in 2011.

4) LWBC #4: This well was first determined to be impaired by the regional PCE plume in 1989 (first time well was sampled for PCE), removed from service and destroyed in 2020.

5) LWBC #5: This well was impaired by the regional PCE plume in 2014 and was removed from service from 2014 through 2021 until the well was fitted with a granular activated carbon (GAC) wellhead treatment system to remove PCE utilizing Proposition 1 and Proposition 68 funds. The well was brought back on-line in 2021.

6) Following the impairment of LBWC #2 and LBWC #5, LBWC began purchasing water in 2014 from the District through an intertie agreement to meet the service area demand.

7) LBWC provides approximately 5 percent of the community water supply.

7.1.2 TKWC

TKWC has three municipal supply wells that serve approximately 1,600 residential and 4 commercial properties.

1) TKWC#1: This well has been impacted by the regional PCE plume since 1996 and it is expected to become impaired by the regional PCE plume within the next few years.

2) TKWC #2: This well was impaired by the regional PCE plume in 2002 and has been fitted with GAC wellhead treatment to remove PCE, reducing its operational capacity from 1,000 gallons per minute (gpm) to approximately 550 gpm.

3) TKWC #3: This well is located approximately 3,000 feet from the northwest portion of the regional PCE plume and threatened by the regional PCE plume.

4) TKWC purchases water from the District and LBWC through emergency intertie agreements on an “as needed” basis.

5) TKWC provides approximately 10 percent of the community water supply.

7.1.3 The District

The District has 16 active municipal supply wells that serve over 14,000 residential and 660 commercial properties.

1) Julie Well: This well was first determined to be impaired by the regional PCE plume in 1989 (first time well was sampled for PCE), operated with wellhead treatment from 1992 through 1999, and destroyed in 2006.

2) Clement Well: This well was impaired by regional PCE plume in 1991, operated with wellhead treatment from 1992 through 1999, and has remained inactive since 1999.

3) Tata #4 Well: This well was first determined to be impacted~~ired~~ by the regional PCE plume in 1989 (first time well was sampled for PCE), operated with wellhead treatment from 1992 through 1999, and was destroyed in 2006.

4) South Y Well: This well was impacted by the regional PCE plume in 2001 and was destroyed in 2006.

5) Between 1992 through 1999, the District operated a Packed Column Air Stripper to remove PCE and methyl tertiary-butyl ether (MTBE) from groundwater pumped from the Julie, Clement, Tata #4, and South Y wells.

6) Bayview Well: This well is considered threatened. It is located within approximately 3,500 feet of the regional PCE plume. Although Proposition 1-funded groundwater modeling work did not show current impacts in any of the modeling scenarios developed to support interim remedial action development for the regional PCE plume, this well accounts for approximately 40 percent of the community water supply and has been identified as a critical component of community water supply. In consideration of the modeling uncertainty and large source water supply capacity of the well, its identification as a threatened well is a conservative approach in assessing potential threat.

7) The District has been providing water to LBWC and TKWC customers through intertie agreements.

8) The District provides about 82 percent of the community water supply.

The District has been directly involved with investigating the regional PCE plume and impacts to supply wells since the initial discovery of PCE contamination. The District originally partnered with the Lahontan Water Board in the 1990s to perform regional scale investigations to identify source(s) and extent of PCE contamination utilizing funding from the State Water Board's Cleanup and Abatement Account. In 2000, the District enacted its first groundwater ordinance and developed a Groundwater Management Plan (GMP) focused on protecting groundwater resources from manmade chemicals, specifically PCE and MTBE. The District updated the GMP in 2014 and the next update is anticipated to be implemented in 2022. In the 2014 GMP, the District identified Groundwater Vulnerability Areas and provided a map illustrating three different Source Area Protection Zones (Figure 48)[141] (i.e., Zone A, Zone B5, and Zone B10 showing two, five, and ten-year time estimates for particle (i.e., contaminant) migration to municipal water supply wells). Borings advanced during the SCAP Regional PCE Investigation showed PCE concentrations above MCL at locations near the edge of Zone A for TKWC #1 (Figure 3)[142], suggesting the regional PCE plume may impair the supply well in as little as two years.

Impaired municipal supply wells, LBWC#2, LBWC #5, and TKWC #2, had a total source capacity of 3.25 million gallons per day (MGD). The District estimates source capacities of municipal supply wells have declined by 10% or 32.4 MGD since 2011 due to impairment from the regional PCE plume[143]. TKWC #1, currently impacted and expected to be impaired within as little as two years, has a source capacity of 1.44 MGD, which represents over 50% of the TKWC water system's maximum daily demand. The District estimates that if LBWC, TKWC, and District sources capacities are reduced by an additional 5.72 MGD, the water purveyors will no longer be able to satisfy water demands[144].

The District has mutual aid and assistance agreements for the emergency provision of drinking water using inter-tie connections from its water distribution system to both the LBWC and TKWC water systems and has been providing water to both TKWC and LBWC through emergency interties to meet each of their water system demands[145]. In 2019, the District provided approximately 2.79 million gallons to LBWC. Also, LBWC installed an inter-tie connection with TKWC in 2021.

[141] Figure 48 illustrates the three different Source Area Protection Zones for each municipal supply well.
[142] Figure 3 shows the estimated lateral extent of the regional PCE plume. The location(s) with PCE concentrations above the MCL near the Source Area Protection Zone A boundary for TKWC#1 need to be inferred from Figure 48.
[143] 2020, Tahoe South Subbasin (6-005.01) Annual Report 2019 Water Year, page 32, South Tahoe Public Utility District, April 27.
[144] 2021, Tahoe South Subbasin (6-005.01) Annual Report 2020 Water Year, page 33, South Tahoe Public Utility District, March 29
[145] Id.

7.2 Small Community and Domestic Supply Wells

Multiple SCS and domestic supply wells have been impaired, impacted or are threatened by the regional PCE plume (Figure 26 and Table 8)[146]. SCS and domestic supply records indicate that there are approximately two (2) active SCS and nine (9) active domestic wells in or near areas overlying the regional PCE plume. Approximately 20 SCS and domestic supply wells in the South Y Area have been sampled for PCE between 1989 and 2019, including the sampling of eight wells as part of the 2019 SCAP Regional PCE Plume Investigation. Additional investigation of SCS and domestic wells, including wells with an unknown status (operational status has not been verified), is necessary to evaluate the potential threat to human health and to determine whether replacement water is necessary at the specific properties.

7.2.1 SCS Supply Wells

Three SCS supply wells have been impaired by the regional PCE plume.

1) Old Stage Mobile Home Park Well: This well was determined to be impaired by the regional PCE plume in 1989 (first time well was sampled for PCE), removed from service, and destroyed in 2001.

2) Rockwater Well: This well was determined to be impaired by the regional PCE plume in 2014 (first time well was sampled for PCE), removed from service, remains inactive, and cannot be sampled because of inoperable well pump.

3) 868 Emerald Bay Road Well: The property owner has reported that this well was impaired by the regional PCE plume in 1996 (no PCE sampling records were located), removed from service, remains inactive, and cannot be sampled because of inoperable well pump.

Two SCS supply wells have been impacted by the regional PCE plume.

1) Former Crystal Range Motel Well: This well was determined to be impacted by the regional PCE plume in 1999 (first time well was sampled for PCE), removed from service, and destroyed in 2006.

2) Tahoe Valley Elementary School Well: This well was determined to be impacted by the regional PCE plume in 1999, removed from service in 2013, and remains inactive.

Two active SCS supply wells identified are threatened by the regional PCE plume.

[146] Figure 26 and Table 8 illustrates and summarizes, respectively, small community system and domestic wells within and adjacent to the regional PCE plume.

1) Jalapeno's Taqueria and Emerald Pines Cabins wells were most recently sampled in 2019 during the SCAP Regional PCE Plume Investigation and PCE was not detected above the reporting limit of 0.5 µg/L.

7.2.2 Domestic Supply Wells

Four domestic supply wells have been impaired by the regional PCE plume. Two of the impaired domestic wells remain inactive while the other two have been destroyed.

1) 883 Eloise Avenue Well: This well was determined to be impaired by the regional PCE plume in 2014, removed from service, remains inactive, and cannot be sampled because of inoperable well pump.

2) 903 Eloise Avenue Well: This well was determined to be impaired by the regional PCE plume in 2015, removed from service, and remains inactive.

3) 848 Glorene Avenue (former preschool) Well: This well was determined to be impaired by the regional PCE plume in 2003 (first time well was sampled for PCE), removed from service, and destroyed in 2003.

4) 2111 Dunlap Drive Well: This well was determined to be impaired by the regional PCE plume in 1999 (first time well was sampled for PCE), removed from service, and destroyed in 1999.

One active domestic supply well identified has been impacted by the regional PCE plume.

1) A well on Emerald Bay Road was determined to be impacted by the regional PCE plume in 2005 (first and only time the well was sampled for PCE). The property owner has not provided Lahontan Water Board staff access to their property to sample well as part of the SCAP Regional PCE Plume Investigation.

Five active domestic supply wells identified are considered threatened by the regional PCE plume.

1) Three wells on Eloise Avenue, one well on Emerald Bay Road, and one well on 12th Street were most recently sampled in 2019 during the SCAP Regional PCE Plume Investigation and PCE was not detected above the reporting limit of 0.5 µg/L.

Six active domestic supply wells are considered threatened/potential receptors.

1) Two wells on Glorene Avenue, one well on Washington Avenue, and one well on Roger Avenue are located within the estimated lateral extent of the regional PCE plume. No groundwater samples have been collected from these wells.

2) One well on Eloise Avenue and one well on South Shore Drive are assumed to be active because the property has a sewer connection with the District and does not

have a municipal water connection with the District or LBWC and located within the estimated lateral extent of the regional PCE plume.

3) Property owners of these wells have not provided Lahontan Water Board staff access to their property to sample well or information on status of well (active, inactive, or destroyed).

Three active domestic supply wells are considered threatened/potential future receptors.

1) One well on Jean Avenue is located cross gradient from the estimated lateral extent of the regional PCE plume. No groundwater samples have been collected from this well.

2) One well on Lake Tahoe Boulevard and one well on 15th Street are assumed to be active because the property has a sewer connection with the District and does not have a municipal water connection with the District or LBWC. These wells are located cross gradient from the estimated lateral extent of the regional PCE plume.

3) Property owners of these three wells have not provided Lahontan Water Board staff access to their property to sample well or information on status of well (active, inactive, or destroyed).

Two inactive domestic supply wells identified are threatened by the regional PCE plume.

1) One well on Eloise Avenue and one well on 7th Street are located within the regional PCE plume. One of the two property owners have not provided Lahontan Water Board staff access to their property to inspect or sample well.

One inactive domestic supply well on Roger Avenue is considered a threatened/potential receptor and the property owner has not provided Lahontan Water Board staff access to their property to inspect or sample well.

One inactive domestic supply well on Emerald Bay Road is considered a threatened/potential future receptor and the property owner has not provided Lahontan Water Board staff access to their property to inspect or sample well.

Ten domestic supply wells have been identified within the lateral extent of the regional PCE plume through DWR well logs, but the wells have not been located to date.

Eight domestic supply wells have been identified cross gradient from the estimated lateral extent of the regional PCE plume through DWR well logs, but the wells have not been located to date.

Four destroyed domestic supply wells identified within the lateral extent of the regional PCE plume may have been historically impacted or impaired by the regional PCE plume.

1) Since no historic PCE data are available for the four destroyed domestic supply wells, it is unknown if the wells were historically impacted or impaired by the regional PCE plume.

Although significant effort has been conducted during the SCAP Regional PCE Plume Investigation to 1) identify the SCS and domestic supply wells in areas overlying the regional PCE plume, 2) compile historic groundwater sampling records to evaluate the potential threat the regional PCE plume has posed on the domestic groundwater supply over time and 3) notify property owners of the potential threat from PCE exposure through consumption of groundwater, this effort is incomplete and additional actions are needed as outlined in this Order to 1) develop an appropriate water replacement plan, 2) continue to evaluate the threat the regional PCE plume poses to supply wells that may become impaired in the future, and 3) determine if SCS and domestic supply wells are acting as vertical conduits for migration of PCE contamination.

8 DISCHARGERS' DATA INTERPRETATION

8.1 Plume Separation

A number of the Dischargers' reports (EKI, 2019b, 2019d, 2020a, and 2020b) assert that there is a separation between the Site and the regional PCE plume. As discussed above, and in following sections, the evidence establishes one continuous regional PCE~~contiguous~~ plume which originates at~~starting from~~ the Site and extends, without interruption, ~~and migrating downgradient~~ to the Tahoe Keys. The following refutes the Dischargers' incorrect interpretation of the available data and demonstrates that Dischargers' CSM is flawed.

1) Available groundwater data and general contaminant fate and transport principles do not support EKI's interpretation of plume separation (in Lake Tahoe Boulevard) between the PCE plume originating from the Site and the regional PCE plume as described in their April 3, 2020 *Investigation Summary Report* (April 2020 ISR) and October 1, 2020 *Investigation Summary Report* (October 2020 ISR). In particular, there are no groundwater sample results indicating that an area with no detections of PCE contamination exists between the Site's property boundary and the regional PCE plume (Figure 3 and Figure 5)[147].

2) In 2008 (i.e., prior to commencement of the AS/SVE operation), PCE concentrations above the MCL were reported in 12 of the 16 groundwater samples (Figure 16, Figure 17, Table 27, and Table 28)[148] collected from the dual zone temporary monitoring wells installed in Lake Tahoe Boulevard demonstrating contamination originating from the Site was migrating off-Site within shallow and

[147] Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.
[148] Figure 16, Figure 17, Table 27 and Table 28 illustrate and summarize, respectively, PCE concentrations in shallow (Figure 13 and Table 27) and middle (Figure 14 and Table 28) zone groundwater during monitoring well installation activities in 2008.

middle zone depths prior to interim remedial implementation. A maximum PCE concentration in shallow groundwater of 706 µg/L was reported on-Site in LW-MW-1S and 85.3 µg/L was reported in Lake Tahoe Boulevard in LW-MW-6S. Since no other potential PCE sources exist between the Site and Lake Tahoe Boulevard, the groundwater contamination identified in Lake Tahoe Boulevard must be from the Site and disproves the Dischargers' "plume separation" theory.

3) In 2018, after approximately 8 years of AS/SVE operation, and as part of the Phase I groundwater investigation activities (Figure 8)[149] four borings were advanced within Lake Tahoe Boulevard downgradient from the Site (LTLW-GW-4 through LTLW-GW-7) and two borings were advanced on the Site (LTLW-GW-1 and LTLW-GW-3). Groundwater samples were collected from five separate depths intervals between 10 and 75 feet bgs at each boring location. The groundwater investigation results within Lake Tahoe Boulevard identified detectable PCE concentrations in 14 of the 25 samples collected, with 9 samples showing PCE concentrations above the MCL within shallow and middle zone groundwater. PCE concentrations above the MCL were reported in shallow and/or middle zone groundwater in each of the four boring locations within Lake Tahoe Boulevard. A maximum PCE concentration of 123 µg/L was reported on-Site in LTLW-GW-1 from 10-14 feet bgs and 28.6 µg/L was reported in Lake Tahoe Boulevard in LTLW-GW-7 collected from 41-45 feet bgs. The groundwater investigation results from the Dischargers' 2018 Phase 1 Site investigation shows that even after 9 years of on-Site AS/SVE remediation system operation and the removal of over 957 pounds of VOCs (i.e., PCE) from the predefined vadose and shallow zone groundwater cleanup areas, all downgradient groundwater sample locations in Lake Tahoe Boulevard contain PCE at concentrations above MCL. This finding is significant because it should be expected the on-Site AS/SVE remediation system would reduce PCE groundwater concentrations to at least below the MCL which may have "erased" the link between the PCE contamination originating from the Site and the regional PCE plume, however, the investigation results confirm the Site is linked to the regional PCE plume, refuting EKI's "plume separation" theory.

4) The SCAP Regional PCE Investigation modeling results, which provide a current snapshot of the vertical extent of the regional PCE plume also discredits the Dischargers'' "plume separation" theory because the cross section clearly displays a one continuous~~contiguous~~ regional PCE plume which extend~~s~~~~ing~~ from the Site north to impaired municipal supply well TKWC #2 (Figure 5)[150] without interruption.

5) EKI's own statements included in the April 2020 ISR and the October 2020 ISR also contradict the "plume separation" theory. EKI states, "…. *the PCE released to the subsurface at the LTLW is not the **primary** source of PCE detected in off-Site groundwater within the South Y area*" (emphasis added). Lahontan Water

[149] Figure 8 shows the boring locations, sampling depths, and PCE concentrations in groundwater within the first transect advanced from the Site during the "Phase I" investigation.
[150] Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.

Board staff have identified this statement as EKI's acknowledgement that the PCE contamination identified at the Site is contributing an unknown portion of PCE mass to the regional PCE plume. EKI did not identify the PCE source that they believe is the **primary** source of PCE contamination in the regional PCE plume in their April 2020 ISR and October 2020 ISR but have provided an extensive list of other potential PCE sources to Lahontan Water Board staff in numerous submittals.

6) EKI has stated in their October 2020 ISR that, "*Intervening lower groundwater PCE concentrations within the shallow, middle, and deeper zones, and the absence of PCE more than 70 feet bgs beneath and near the Site demonstrate higher groundwater PCE concentrations north of Lake Tahoe Boulevard are attributable to off-Site sources*". Lahontan Water Board staff acknowledge that additional, as-yet-undetermined, sources may have contributed to the high concentrations of PCE detected north of Lake Tahoe Boulevard. However, the available groundwater data clearly indicates that PCE contamination originating from the Site is contributing PCE mass to the regional PCE plume and that the Site is the origin of the regional PCE plume.

7) Notably, EKI was only able to identify an "intervening" area of lower PCE concentrations rather than an "intervening" area where PCE contamination was not detected. The presence of lower concentrations does not support a "plume separation" theory.

8) Lahontan Water Board staff observe that a more likely explanation for the high PCE concentrations in groundwater north of Lake Tahoe Boulevard may be attributed to off-Site migration within investigated and uninvestigated areas and depths between the shallow and middle zones (i.e., between 26 and 41 feet bgs) and off-Site transport of PCE contamination to Tucker Basin via the stormwater conveyance system. This theory is supported by the facts that elevated masses of PCE in soil gas were found at the western drop inlet to the stormwater conveyance system at the lowest elevation on the Site (i.e., the Site drained to that location) and at stormwater conveyance system's discharge location to Tucker Basin (Figure 7)[151]. Stormwater contaminated with PCE would then infiltrate into groundwater below the Tucker Basin. The PCE would spread both laterally and vertically under the influence of both local gradients (i.e., PCE contaminated stormwater infiltrating to groundwater in the immediate vicinity of Tucker Basin will spread radially as it infiltrates to the top of the groundwater table) before being controlled by the regional horizontal (northerly) and vertical (downward) groundwater gradients. SCAP Regional PCE Investigation modeling results, which estimate and illustrate the distribution of PCE concentrations in groundwater from 0 to 25 feet bgs, also provide indication contaminant transport has occurred along the City of South Lake Tahoe's stormwater conveyance system (Figure

[151] Figure 7 show passive soil gas investigation results for locations near stormwater conveyance inlets at the Site and within Tucker Basin.

24)[152]. This evidence is consistent with migration from the Site combined with off-Site transport via a preferential pathway (stormwater conveyance system) and does not support Dischargers' "plume separation" theory from another unidentified source.

8.2 Mass Balance

Another theory EKI has proposed in their October 2020 ISR is that, *"formation of a groundwater VOC plume is governed by the mass balance between contaminant loading and attenuation mechanisms"* and *"the lack of an off-Site plume originating from LTLW is due to a PCE loading rate to groundwater that is less than the PCE attenuation rate in groundwater"*. In other words, EKI suggests that the amount of PCE attributable to the Site is so little that it would attenuate (dilute or degrade) faster than the amount of time it would take for that small amount of PCE to migrate off-Site. These statements, which purportedly support EKI's conclusion that PCE has not migrated off-Site, conflict with EKI's own previous PCE distance migration calculations and are refuted by the following:

1) Over 982 pounds of VOCs (i.e., PCE) have been removed from the Site since AS/SVE system initiation. PCE and PCE degradation by-products were located in soil at depths within the range of historical groundwater elevations (i.e., were in contact with groundwater at various points in time) and at concentrations exceeding leaching to groundwater ESLs (Figure 9, Table 14, Table 18, Table 19, Table 20, Table 21, Table 22, and Table 25)[153]. The design of the AS/SVE system (Figure 21 and Table 6)[154] and mass removal over time (Table 26)[155] clearly shows on-Site mass was available in sufficient quantities and at depths to provide the mass loading which is consistent with the regional PCE plume and not a limited localized plume restricted to the Site and near vicinity.

2) Quarterly groundwater monitoring (Figure 22 and Table 2)[156] has shown a maximum on-Site PCE concentration of 5,150 µg/L in shallow groundwater prior to remedial implementation and consistent PCE concentrations above MCL in monitoring wells located along the northern property boundary (i.e., down gradient portion of the Site). The concentrations above MCL along the property boundary and at the Site demonstrate the on-Site mass was present in sufficient quantities

[152] Figure 3 displays the estimated lateral extent of the regional PCE plume.
Figure 5 displays the vertical extent of the regional PCE plume originating from the Site north to impaired municipal supply well TKWC #2.
Figure 24 show estimated PCE concentrations in groundwater from 0 to 25 and stormwater conveyance system components within the regional PCE plume area.
[153] Figure 9, Table 14, Table 18, Table 19, Table 20, Table 21, and Table 22 illustrate PCE concentrations in soil and sampling depths during investigations at the Site and depth to water measurements collected during quarterly groundwater monitoring (Table 25).
[154], Figure 21 show the location Figure 21 and Table 6 summarizes the depths of on-Site AS/SVE system components.
[155] Table 26 shows estimated PCE mass removal from the AS/SVE system over time.
[156] Figure 22 and Table 2 illustrate and summarize, respectively, quarterly groundwater monitoring results, including recent and maximum PCE concentrations in shallow and middle zone groundwater, from the Site.

to partition into groundwater, migrate off-Site, and be subject to natural attenuation processes.

3) Any dissolved phase (i.e., groundwater) contaminant transport would be controlled by natural and induced (i.e., supply well pumping) groundwater flow directions and gradients, hydraulic conductivities, and the effective porosity of the subsurface relative to natural attenuation processes (i.e., retardation factor). EKI provided an estimate of PCE velocity and migration distance in their "Calculation of Potential PCE Migration in Shallow Zone Between February 2013 through August 2013" document[157]. The assumptions used in the calculation were derived from aquifer testing results at nearby properties, on-Site quarterly groundwater monitoring, and literature values. While Lahontan Water Board staff do not necessarily agree with all assumptions used in the calculation, the calculation itself provides a general estimate of natural attenuation processes and potential PCE migration over time. EKI estimated a PCE velocity of 0.2 feet per day and low fractions of organic carbon materials (i.e., conditions supporting little natural attenuation) within the aquifer. EKI's calculation is somewhat consistent (i.e., approximately 3 times slower) with the District's estimated "10-year Time of Travel" shown on a figure illustrating source area protection zones for supply wells in their 2014 Groundwater Management Plan for the Tahoe Valley South Basin (Figure 48).[158] The District's and EKI's estimates are borne out by the evidence produced during the SCAP Regional PCE Plume Investigation (Figure 3, Figure 5, and Figure 24). [159]

4) Using EKI's estimated PCE velocity and considering the forty years of potential discharge and unabated migration, this equates to a PCE migration distance of approximately 3,000 feet. Notwithstanding EKI's calculation, which includes consideration of natural attenuation processes, the CSM currently advanced concludes that no more than 100 feet of potential migration occurred. Assumptions within the calculation are based on groundwater gradients and material properties and are not expected to change significantly (i.e., groundwater gradients, hydraulic conductivity, retardation factor, and effective porosity). The Dischargers' consultants have not updated their retardation factor or provided explanation to account for the attenuation processes that would be necessary to restrict the dissolved phase contamination (i.e., contamination dissolved in groundwater) to locations within 100 feet of the Site for over forty years.

5) The most obvious rebuttal to EKI's invitation to engage in modeling scenarios is the fact that groundwater investigations conducted to date have unequivocally identified PCE contamination above the MCL in both historical and recent samples collected in the shallow and middle zone groundwater downgradient of the Site

[157] AR16107-16110
[158] Figure 48 shows the source area protection zones identified by the District.
[159] Figure 24 show estimated PCE concentrations in groundwater from 0 to 25 and stormwater conveyance system components within the regional PCE plume area.

(i.e., beyond the Site property boundary). As previously stated, these detections of PCE above the MCL cannot be attributed to another upgradient PCE source.

6) Along those lines, although Lahontan Water Board staff do not concur with Dischargers estimated lateral extent of PCE contamination migrating from the Site or the concentrations for the specific timeframes (i.e., pre and post 2011; Figures 5-3a through 5-4b) as shown in EKI's April 2019 ISR (EKI, 2019b), EKI's interpretation of the lateral extent of PCE contamination in this ISR and future ISRs clearly shows that migration of PCE contamination in shallow and middle zone groundwater extends off-Site and is more consistent with their previous calculations for potential PCE migration distances. Specifically, EKI's most recent estimate of the lateral extent of PCE contamination in the shallow, middle, and deeper zones originating from the Site, as presented in EKI's iso-concentration maps in the October 2020 ISR (Figure 52, Figure 53, and Figure 54)[160], refutes EKI's statement regarding a lack of an off-Site plume due to a PCE loading rate to groundwater that is less than the PCE attenuation rate in groundwater.

8.3 Additional Potential Upgradient Sources

The Dischargers have advanced numerous borings in unsuccessful efforts to identify potential PCE sources upgradient of the Site. During their Phase "I" groundwater investigation (Figure 8)[161], the Dischargers' consultants advanced boring LTLW-GW-3 immediately west of the Site with the stated purpose of evaluating potential upgradient sources. PCE was detected in the middle zone groundwater sample (from 41 to 45 feet bgs) collected at this location at a concentration of 31.7 µg/L. PCE was also detected below the MCL at a concentration of 1.41 µg/L further west of the Site in another middle zone grab groundwater sample (LTLW-GW-2; collected from 46 to 50 feet bgs in January 2018). Groundwater data from LTLW-GW-2 and LTLW-GW-3 cannot be assigned to an upgradient source location for the following reasons.:

1) LTLW-GW-3 is located directly adjacent to the sanitary sewer alignment and connection from the building;

2) LTLW-GW-3 is located approximately 100 feet from the former DCU;

3) LTLW-GW-3 is located in an area where passive soil vapor sampling showed elevated PCE mass (PSG-2; 319 ng); and

4) LTLW-GW-2 and GW-3 are located in an area estimated by the Dischargers' consultants to be downgradient of the Site during historical water supply well pumping operations to the west (see below for additional detail).

[160] Figure 52, Figure 53 and Figure 54 present EKI's estimated PCE concentrations in shallow (Figure 49), middle (Figure 50), and deeper (Figure 51) groundwater zones.
[161] Figure 8 shows the location and groundwater analytical results for boring LTLW-GW-3.

As stated in EKI's April 1, 2019 *Investigation Summary Report* (April 2019 ISR), the middle zone's groundwater flow direction shifted towards the west under the influence of maximum drawdowns created by municipal water supply well operations to the west of the Site prior to 2000; once pumping at the municipal wells located to the west ceased, the groundwater flow direction in the middle zone shifted back towards the north-northwest. EKI also discusses, and provides illustration, in the April 2019 ISR, of a shift from northwest to more westerly in the observed and inferred middle zone groundwater flow directions for 2018 (Figure 55)[162]. Given the proximity to identified on-Site PCE contamination and influence of historical pumping operations to the west, the detections of PCE both above and below the MCL in the middle zone represents downgradient migration of PCE contamination from the Site, and does not support the interpretation of potential upgradient source(s) as shown on figures and cross sections contained in the April 2020 ISR and October 2020 ISR.

8.4 Contaminant Transport Via Preferential Pathways

The Dischargers' consultants have concluded PCE did not travel from the Site to Tucker Basin through an inconsistent analysis of the "Stage" I and "Stage" II preferential pathway investigations results and initial passive soil vapor screening activities in Tucker Basin (Figure 7 and Figure 11)[163]. The Dischargers consultants focus on (1) indications of DNAPL at stormwater conveyance drop inlets and discharge point to Tucker Basin and (2) the magnitude of PCE concentrations in soil within stormwater conveyance utility backfill (which is located within the AS/SVE remediation system's zone of influence) while ignoring the potential dissolved phase transport (i.e. contaminated stormwater rather than DNAPL) and speculating the three order of magnitude mass distribution pattern may be due to off-gassing from shallow groundwater.

The Dischargers' analysis and recommendations associated with Tucker Basin (i.e., no additional investigation is warranted) conflict with their own recent comments provided for the ~~former~~ Big O Tires and Former Norma's Cleaners (formerly Hurzel Properties, LLC) sites and the source identification criteria contained in the March 19, 2018 *Amended Groundwater Investigation Work Plan*. In the comments provided, the Dischargers' consultants state *"passive soil gas surveys are a useful initial screening tool: however they should not be relied upon as a sole line of evidence for the potential presence/absence of source areas*" and "*follow-on samples should be collected to obtain corresponding concentrations of the contaminants in soil, soil gas, or groundwater…*" The data collected during the initial passive soil vapor investigation clearly demonstrates the need for additional follow-on sampling due to the three order of magnitude difference in masses reported at the on-Site stormwater conveyance system drop inlets and its discharge point to Tucker Basin. Available soil vapor and groundwater data also indicates

[162] Figure 55 shows estimates for observed and adjusted groundwater elevations (i.e., groundwater flow directions) in middle zone groundwater to account for municipal supply well pumping in November 2018.
[163] Figure 7 shows passive soil gas data collected at the Site and from within Tucker Basin.
Figure 11 shows PCE concentrations in soil from samples collected within and adjacent to stormwater conveyance system backfill during the Phase I preferential pathway investigation.

that Tucker Basin meets the Dischargers' source identification criteria for properties potentially contributing to the regional PCE plume.

Despite Tucker Basin meeting source identification criteria and the content of the comments provided to the other sites (~~former~~ Big O Tires and Former Norma's Cleaners [formerly Hurzel Properties, LLC]), the Dischargers' consultants have elected not to apply their own recommendations to the PCE mass (which is also three orders of magnitude difference) detected at the Site during their own soil gas investigations or recognize the potential off-Site transport. Instead, the Dischargers' have stated that further investigation of the stormwater conveyance system is the sole responsibility of the ~~former~~ Big O Tires site owners and have elected not to conduct any additional preferential pathway related investigative activities.

As previously stated, the Dischargers' investigations conducted to date have not resulted in a complete delineation of the extent and magnitude of PCE contamination within and beyond Tucker Basin. The preferential pathway investigations remain incomplete and do not adequately evaluate the potential threat to human health from waste discharged to the environment via preferential pathways.

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ATTACHMENT 1C: "MARKUP" OF CLEANUP AND ABATEMENT ORDER R6T-2022-(PROPOSED) FOR LAKE TAHOE LAUNDRY WORKS, ATTACHMENT B LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS 5 YEAR COST ESTIMATE ASSUMPTIONS

Proposed Revisions to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) Memorandum dated August 16, 2023, Requiring Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc., to Assess, Cleanup and Abate Waste Discharged to Waters of the State Pursuant to California Water Code Sections 13267 and 13304 at 1024 Lake Tahoe Boulevard and Regional Perchloroethylene Groundwater Plume, South Lake Tahoe, El Dorado County.

ATTACHMENT B: LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS
5-YEAR COST ESTIMATE ASSUMPTIONS

PROJECT NAME: Lake Tahoe Laundry Works
PROJECT ADDRESS: 1024 Lake Tahoe Boulevard, South Lake Tahoe, CA
PROJECT NUMBER: T6S043

ORDER #	ORDER DESCRIPTION	ASSUMPTIONS
General	"Engineer's Estimate" Limitations	This "engineer's estimate" provides a summary of estimated "order of magnitude" costs associated with the development of a Revised Conceptual Site Model (CSM) and the planning and implementation of site assessment activities required under Water Code 13267. This "engineer's estimate" does not provide a summary of "order of magnitude" costs associated with any other Order required activities including the 1) the development and implementation of a human health and ecological risk assessment, 2) vapor intrusion mitigation, 3) water replacement, and 4) remedial actions. A cost contingency has not been included in this "engineer's estimate".
Order 1:	Conceptual Site Model	This task includes the cost to develop a Revised CSM to describe and display discharge scenario (s), source area(s) of contamination geology and hydrogeology, fate and transport in soil, soil vapor, and groundwater, distribution of wastes, exposure pathways, sensitive receptors, impaired receptors, and threatened receptors. Assumes Revised Conceptual Site Model (CSM) will take a professional team three (3) weeks to develop
Order 2:	Sampling and Analysis Plan & Quality Assurance Project Plan	This task includes the cost to develop a Sampling and Analysis Plan. Assumes Sampling and Analysis Plan will take a professional team two (2) weeks to develop.
Order 3:	Develop, Submit, and Implement Site Investigation Work Plan(s)	This task includes the cost to delineate the lateral and vertical extent of contamination originating from the Site in soil, soil gas, and groundwater. Assumes one (1) work plan will be developed to investigate extent of soil, soil gas, groundwater contamination on-Site and off-Site, and to delineate the extent of regional PCE groundwater plume and assumes one (1) investigation summary report will be developed. Soil investigation assumes that 25 soil borings to 15 feet bgs will be advanced on-Site and off-Site where data gaps exist using direct-push drill rig; four (4) soil samples will be collected per boring; and a total of 110 soil samples (including QC samples) will be collected and analyzed for VOCs. Soil gas investigation assumes that 25 temporary soil gas wells will be installed to 5 feet bgs and 25 temporary soil gas wells will be installed to 10 feet bgs in areas on-Site and off-Site where data gaps exist using a direct-push drill rig; two (2) soil vapor sample will be collected per temporary well to assess seasonal variations in soil gas concentrations; and a total of 120 soil gas samples (including QC samples) will be collected and analyzed for VOCs. On-Site and off-Site groundwater investigation assumes that 20 CPT and/or direct push borings will be advanced to 100 feet bgs in areas where data gaps exist on-Site and off-Site; eight (8) Hydropunch depth discrete groundwater samples will be collected per boring; and a total of 192 groundwater water samples (including QC samples) will be collected and analyzed for VOCs. Regional plume groundwater investigation assumes that 20 CPT borings will be advanced to 100 feet bgs and 20 Sonic borings will be advanced to 300 feet bgs to address data gaps identified during the SCAP Regional Plume Investigation; eight (8) Hydropunch depth discrete groundwater samples will be collected per boring; and a total of 384 samples (including QC samples) will be collected and analyzed for VOCs. Assumes Work Plan will take a professional team four (4) weeks to develop; Investigation Summary Report will take a professional team three (3) weeks to develop; Site Assessment will take 40 weeks to complete and require two (2) staff professionals working 10 hours per day, and field work will be overseen by senior and project professionals; 65 CPT and/or DPT drilling feet per day (AECOM estimate); 60 Sonic drilling feet per day (AECOM estimate); CPT drilling cost per foot $150 (AECOM invoice 2020); DPT soil gas drilling cost per foot $120 (estimated); and Sonic drilling cost per foot $170 (AECOM estimate).

ATTACHMENT B: LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS
5-YEAR COST ESTIMATE ASSUMPTIONS

PROJECT NAME: Lake Tahoe Laundry Works
PROJECT ADDRESS: 1024 Lake Tahoe Boulevard, South Lake Tahoe, CA
PROJECT NUMBER: T6S043

ORDER #	ORDER DESCRIPTION	ASSUMPTIONS
Order 4:	Develop, Submit, and Implement a Monitoring Well Installation Work Plan	Assumes one (1) work plan will be developed to install perimeter and sentry monitoring wells and one (1) well installation completion report will be developed. Assumes perimeter wells will be installed at 10 locations with three (3) wells per location with screen intervals at 100, 150, and 200 feet using a sonic drill rig to monitor plume migration. Actual well screen intervals will be determined in the field based on lithology and PCE contamination observed during Site Investigation (Order 3) and during the SCAP Regional Plume Investigation. Assumes sentry wells will be installed at four (4) locations with three (3) per location with screen intervals at 100 feet, 150 feet, and 300 feet using a sonic drill rig. Actual well screen intervals will be based on the municipal supply well screen interval (s) and lithology and PCE contamination observed during Site Investigation (Order 3) and during the SCAP Regional Plume Investigation. Estimate assumes nine (9) sentry wells were previously installed for four threatened or impacted supply wells during the SCAP Investigation. Assumes Work Plan will take a professional team two (2) weeks to develop; Well Installation Completion Report will take a professional team three (3) weeks to develop; perimeter and sentry well installation will take 24 weeks to complete and require two (2) staff professionals working 10 hours per day, and field work will be overseen by senior and project professionals; 60 Sonic drilling feet per day (AECOM estimate); and Sonic well installation drilling cost per foot $275 (AECOM estimate).
Order 5:	Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan	Assumes one work plan will be developed to assess potential risk from vapor intrusion and will require an in-depth building survey to design sampling plan. Assumes indoor air and sub slab samples will be collected from four (4) buildings on-Site and four (4) building off-Site; three (3) indoor air and three (3) sub slab samples will be collected per building, three (3) outdoor air samples will be collected; and four sampling events will be conducted to evaluate temporal variability; a total of 116 indoor air (including QC samples), 116 sub slab (including QC samples), and 15 outdoor air samples will be collected and analyzed for VOCs. Assumes Work Plan will take a professional team two (2) weeks to develop and will require one site visit to develop sampling approach; Vapor Intrusion Completion Report will take a professional team three (3) weeks to develop; each indoor air and sub slab sampling event will take eight days to complete and require two (2) staff professionals working 10 hours per day; four sampling events; and field work will be overseen by senior and project professionals.
Order 6:	Prepare and Submit Human Health and Ecological Risk Assessment	Assumes one (1) HHERA report will be developed using data generated during Site Investigation (Order 3), Vapor Intrusion Investigation (Order 5), and/or during previous investigations (LTLW or by others [e.g., SCAP Regional Plume Investigation]) and no data gap investigation work is required. Assumes each HHERA will take a professional team three (3) weeks to develop.

ATTACHMENT B: LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS
5-YEAR COST ESTIMATE ASSUMPTIONS

PROJECT NAME: Lake Tahoe Laundry Works
PROJECT ADDRESS: 1024 Lake Tahoe Boulevard, South Lake Tahoe, CA
PROJECT NUMBER: T6S043

ORDER #	ORDER DESCRIPTION	ASSUMPTIONS
Order 9:	Routine Monitoring (5 years)	This task includes the cost to conduct quarterly monitoring of groundwater, perimeter, sentry, and active domestic supply wells until remedial action is complete (assume 5 years for this estimate). This task summary provides a conservative estimate of costs if the Discharger elects to implement an innovative and/or aggressive remediation technology that results in an accelerated remediation timeframe, the actual monitoring costs may be significantly reduced (e.g. quarterly monitoring may be reduced to 5 years with an associated cost reduction of 60% to 80%).
		Assumes quarterly groundwater, perimeter, sentry, and private well monitoring and reporting for first three (3) years and semi-annual for 3 years and a total of 16 monitoring events. Assumes sampling of existing 18 on-Site and off-Site monitoring wells, 42 new perimeter and sentry monitoring wells installed as part of Order 4, and nine (9) sentry wells installed as part of the SCAP Regional PCE Investigation (total of 69 wells); quarterly sampling for first three (3) years and semi-annual sampling for 2 years; and a total of 1,325 samples (including QC samples) will be collected and analyzed for VOCs. Assumes sampling of 10 active domestic supply wells that are threatened by contamination; sampling of five (5) municipal supply wells that are threatened or impacted by contamination; quarterly sampling for first three (3) years and semi-annual sampling for two (2) years; and a total of 288 samples (including QC samples) will be collected and analyzed for VOCs. Assumes each groundwater, perimeter, sentry, municipal, and private well monitoring report will take a professional team two (2) weeks to develop; and each monitoring event will take 3.8 weeks to complete and require two (2) staff professionals working 10 hours per day.

ATTACHMENT B: LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS
5-YEAR COST ESTIMATE SUMMARY

PROJECT NAME:	Lake Tahoe Laundry Works
PROJECT ADDRESS:	1024 Lake Tahoe Boulevard, South Lake Tahoe, CA
CASE NUMBER:	T6S043

Order #	Order Description	Cost Summary
Order 1:	Conceptual Site Model	$ 30,750
Order 2:	Sampling and Analysis Plan & Quality Assurance Project Plan	$ 20,500
Order 3:	Develop, Submit, and Implement Site Investigation Work Plan(s)	$ 2,786,648
Order 4:	Develop, Submit, and Implement a Monitoring Well Installation Work Plan	$ 2,701,962
Order 5:	Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan	$ 228,976
Order 6:	Prepare and Submit Human Health and Ecological Risk Assessment	$ 30,750
Order 9:	Routine Monitoring (5 years)	$ 877,257
PROJECT TOTAL (WITHOUT CONTINGENCY):		**$ 6,676,843**

ATTACHMENT B: LAHONTAN WATER BOARD'S ENGINEER'S COST ESTIMATE OF INVESTIGATION AND REPORTING SCENARIOS
5-YEAR COST ESTIMATE

LABOR HOURS	Source		Order 1: Conceptual Site Model		Order 2: Sampling and Analysis Plan & Quality Assurance Project Plan		Order 3: Develop, Submit, and Implement Site Investigation Work Plan(s)		Order 4: Develop, Submit, and Implement a Monitoring Well Installation Work Plan		Order 5: Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan		Order 6: Prepare and Submit Human Health and Ecological Risk Assessment		Order 9: Routine Monitoring (25 years)		TOTAL	
PERSONNEL SERVICES		**Labor Rates**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**	**Hours**	**Cost**
Principal	SCAP Country C	$ 182	9	$ 1,638	6	$ 1,092	21	$ 3,822	15	$ 2,730	15	$ 2,730	9	$ 1,638	96	$ 17,472	171	$ 31,122
Senior Professional	SCAP Country C	$ 152	36	$ 5,472	24	$ 3,648	277	$ 42,104	179	$ 27,208	92	$ 13,984	36	$ 5,472	384	$ 58,368	1,028	$ 156,256
Project Professional	SCAP Country C	$ 131	60	$ 7,860	40	$ 5,240	526	$ 68,906	338	$ 44,278	164	$ 21,484	60	$ 7,860	640	$ 83,840	1,828	$ 239,468
Staff Professional	SCAP Country C	$ 109	120	$ 13,080	80	$ 8,720	4,140	$ 451,260	2,580	$ 281,220	840	$ 91,560	120	$ 13,080	1,280	$ 139,520	9,160	$ 998,440
Illustrator	SCAP Country C	$ 80	24	$ 1,920	16	$ 1,280	56	$ 4,480	40	$ 3,200	40	$ 3,200	24	$ 1,920	256	$ 20,480	456	$ 36,480
Clerical	SCAP Country C	$ 65	12	$ 780	8	$ 520	28	$ 1,820	20	$ 1,300	20	$ 1,300	12	$ 780	128	$ 8,320	228	$ 14,820
Total Labor			**261**	**$ 30,750**	**174**	**$ 20,500**	**5,048**	**$ 572,392**	**3,172**	**$ 359,936**	**1,171**	**$ 134,258**	**261**	**$ 30,750**	**2,784**	**$ 328,000**	**12,871**	**$ 1,476,586**
TRAVEL		**$/Unit**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**
Mileage Reimbursement	SCAP South Y R	$ 0.54	0	$ -	0	$ -	0	$ -		$ -	0	$ -	0	$ -	0	$ -	0	$ -
Truck Rental and Fuel (daily)	SCAP South Y R	$ 85	0	$ -	0	$ -	193	$ 16,405	119	$ 10,115	32	$ 2,720	0	$ -	301	$ 25,568	645	$ 54,808
Per Diem	SCAP South Y R	$ 185	0	$ -	0	$ -	193	$ 35,705	119	$ 22,015	32	$ 5,920	0	$ -	301	$ 55,648	645	$ 119,288
Total Travel				**$ -**		**$ -**	**-**	**$ 52,110**	**238**	**$ 32,130**	**64**	**$ 8,640**	**0**	**$ -**	**602**	**$ 81,216**	**1,290**	**$ 174,096**
OTHER DIRECT COSTS (ODCs)		**$/Unit**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**	**Amt**	**Cost**
Regulatory Oversight (lump sum)		$ ~~1,0~~600,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 600,000
Analytical - Groundwater VOCs by EPA 8260	SCAP Country C	$ 125	0	$ -	0	$ -	576	$ 72,000	0	$ -	0	$ -	0	$ -	1613	$ 201,625	2,189	$ 273,625
Analytical - Indoor Air VOCs by EPA TO-15 SIM	SCAP Country C	$ 250	0	$ -	0	$ -	0	$ -	0	$ -	131	$ 32,750	0	$ -	0	$ -	131	$ 32,750
Analytical - Soil Vapor VOCs by EPA TO-15	SCAP Country C	$ 195	0	$ -	0	$ -	120	$ 23,400	0	$ -	116	$ 22,620	0	$ -	0	$ -	236	$ 46,020
Analytical - Soil VOCs by EPA 8260	SCAP Country C	$ 125	0	$ -	0	$ -	110	$ 13,750	0	$ -	0	$ -	0	$ -	0	$ -	110	$ 13,750
Summa Canister Rental	SCAP Country C	$ 50	0	$ -	0	$ -	120	$ 6,000	0	$ -	247	$ 12,350	0	$ -	0	$ -	367	$ 18,350
Encore Sample Kit	SCAP Country C	$ 15	0	$ -	0	$ -	110	$ 1,650	0	$ -	0	$ -	0	$ -	0	$ -	110	$ 1,650
Misc. Sampling Equipment (per week)	SCAP Country C	$ 250	0	$ -	0	$ -	39	$ 9,650	0	$ -	6	$ 1,600	0	$ -	61	$ 15,250	106	$ 26,500
Shipping - Coolers	SCAP Country C	$ 125	0	$ -	0	$ -	39	$ 4,825	0	$ -	6	$ 800	0	$ -	61	$ 7,625	106	$ 13,250
Traffic Control Plan per Location	SCAP South Y R	$ 800	0	$ -	0	$ -	3	$ 2,400	5	$ 4,000	0	$ -	0	$ -	0	$ -	8	$ 6,400
Traffic Control Equipment Rental (signs, cones, etc. per week)	SCAP South Y R	$ 300	0	$ -	0	$ -	39	$ 11,580	24	$ 7,140	6.4	$ 1,920	0	$ -	61	$ 18,300	130	$ 38,940
GPS Rental (per week)	SCAP South Y R	$ 415	0	$ -	0	$ -	1	$ 415	2	$ 830	1	$ 415	0	$ -	0	$ -	4	$ 1,660
YSI Rental (per week)	SCAP South Y R	$ 150	0	$ -	0	$ -	34	$ 5,040	24	$ 3,570	0	$ -	0	$ -	61	$ 9,150	118	$ 17,760
Photoionization Detector-Multiple Gas (per week)	SCAP Country C	$ 145	0	$ -	0	$ -	39	$ 5,597	24	$ 3,451	6	$ 928	0	$ -	61	$ 8,845	130	$ 18,821
Vapor Pins	SCAP Country C	$ 250	0	$ -	0	$ -	0	$ -	0	$ -		$ -	0	$ -	0	$ -	0	$ -
Boring Permits (per event)	SCAP South Y R	$ 6,000	0	$ -	0	$ -	1	$ 6,000	0	$ -	0.5	$ 3,000	0	$ -	0	$ -	2	$ 9,000
Well Permits (per well)	SCAP South Y R	$ 1,500	0	$ -	0	$ -	0	$ -	42	$ 63,000	0	$ -	0	$ -	0	$ -	42	$ 63,000
Utility Clearing (A-Plus Locator per day, 10 location per day)	SCAP South Y R	$ 1,870	0	$ -	0	$ -	14	$ 26,180	5	$ 9,350	1	$ 1,870	0	$ -	0	$ -	20	$ 37,400
CPT Drilling Footage Rate	SCAP South Y R	$ 150	0	$ -	0	$ -	4000	$ 600,000	0	$ -	0	$ -	0	$ -	0	$ -	4,000	$ 600,000
Sonic Drilling Footage Rate	SCAP South Y R	$ 170	0	$ -	0	$ -	6000	$ 1,020,000	0	$ -	0	$ -	0	$ -	0	$ -	6,000	$ 1,020,000
DPT Drilling Footage Rate	SCAP Remainin	$ 70	0	$ -	0	$ -	375	$ 26,250	0	$ -	0	$ -	0	$ -	0	$ -	375	$ 26,250
Surveying (event)	SCAP South Y R	$ 24,000	0	$ -	0	$ -	0	$ -	1	$ 24,000	0	$ -	0	$ -	0	$ -	1	$ 24,000
20,000 gal storage tank mob/demob	SCAP South Y R	$ 1,800	0	$ -	0	$ -	3	$ 5,400	5	$ 9,000	0	$ -	0	$ -	0	$ -	8	$ 14,400
20,000 gal storage tank rental per week	SCAP South Y R	$ 294	0	$ -	0	$ -	41	$ 11,936	26	$ 7,644	0	$ -	0	$ -	0	$ -	67	$ 19,580
20-yard roll-off bin mob/demob	SCAP South Y R	$ 1,800	0	$ -	0	$ -	22	$ 39,600	42	$ 75,600	0	$ -	0	$ -	0	$ -	64	$ 115,200
20-yard roll-off bin rental per week	SCAP South Y R	$ 190	0	$ -	0	$ -	41	$ 7,714	26	$ 4,940	0	$ -	0	$ -	0	$ -	67	$ 12,654
Drums	SCAP Country C	$ 55	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	126	$ 6,952	126	$ 6,952
Sanitation station (unit/month)	SCAP South Y R	$ 245	0	$ -	0	$ -	10	$ 2,450	24	$ 5,880	0	$ -	0	$ -	61	$ 14,945	95	$ 23,275
IDW Disposal	SCAP South Y R	$ 750	0	$ -	0	$ -	25	$ 18,750	52	$ 39,000	0	$ -	0	$ -	126	$ 94,800	203	$ 152,550
DPT Soil Gas Well Installation Drilling Footage Rate	Estimated	$ 120	0	$ -	0	$ -	375	$ 45,000	0	$ -	0	$ -	0	$ -	0	$ -	375	$ 45,000
Sonic Well Installation Drilling Footage Rate	SCAP Remainin	$ 275	0	$ -	0	$ -	0	$ -	6700	$ 1,842,500	0	$ -	0	$ -	0	$ -	6,700	$ 1,842,500
Vapor/GW Sampling Contractor	SCAP Country C	$ 3,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	16	$ 48,000	16	$ 48,000
Mitigation Measures	SCAP Country C	$ 25,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Materials and Equipment	SCAP Country C	$ 2,500	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Electrician/plumber	SCAP Country C	$ 5,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
OCD Markup (10%)			0	$ -		$ -	0	$ 196,559		$ 209,991		$ 7,825	0	$ -		$ 42,549	0	$ 456,924
Total ODCs				**$ -**			**-**	**$ 2,162,146**		**$ 2,309,896**		**$ 86,078**		**$ -**		**$ 468,041**		**$ 5,026,161**
PROJECT TOTAL			**--**	**$ 30,750**	**-**	**$ 20,500**		**$ 2,786,648**		**$ 2,701,962**		**$ 228,976**		**$ 30,750**		**$ 877,257**		**$ 6,676,843**

ATTACHMENT 2: RESPONSE TO COMMENTS MEMORANDUM

Proposed Revisions to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) Memorandum dated August 16, 2023, Requiring Seven Springs Limited Partnership, Fox Capital Management Corporation, Bobby Pages, Inc., and Connolly Development, Inc., to Assess, Cleanup and Abate Waste Discharged to Waters of the State Pursuant to California Water Code Sections 13267 and 13304 at 1024 Lake Tahoe Boulevard and Regional Perchloroethylene Groundwater Plume, South Lake Tahoe, El Dorado County.

MEMORANDUM

TO: Mike Plaziak
Executive Officer,
Lahontan Regional Water Quality Control Board

FROM: Ben Letton
Assistant Executive Officer
Lahontan Regional Water Quality Control Board

DATE: August 17, 2023

SUBJECT: **RESPONSE TO COMMENTS, LAKE TAHOE LAUNDRY WORKS, 1024 LAKE TAHOE BOULEVARD, SOUTH LAKE TAHOE, EL DORADO COUNTY, SCP CASE NO. T6S043, GEOTRACKER GLOBAL ID NO. SL0601754315**

The Lahontan Regional Water Quality Control Board's Cleanup Team (Cleanup Team) is providing responses to comments received during the public comment period for Cleanup and Abatement Order R6T-2022-PROPOSED (Order) for Lake Tahoe Laundry Works. The comments received may be viewed at:

https://www.waterboards.ca.gov/lahontan/water_issues/programs/enforcement/lake_tahoe_laundry_works_2022_cao.html#comments

Below is a summary of the comments received:

1. Lukins Brother Water Company
    - Letter dated September 16, 2022 *RE: Request for Comments-Cleanup and Abatement Order No. R6T-2022- (Proposed)* (3 pages)
2. Hogan Lovells on behalf of Fox Capital Management Company (Fox)
    - Letter dated September 19, 2022 *Re: Response to Cleanup and Abatement Order R6T-2022- (Proposed) for Lake Tahoe Laundry Works Site* (47 pages; legal analysis),
        - Exhibit A, *References* (4 pages; legal references cited in September 19, 2023 letter)
        - Exhibit B, *Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order* prepared by PES Environmental, Inc (PES) and EKI Environment & Water, Inc. (EKI) on behalf of Seven Springs Limited Partnership (Seven Springs) and Fox (90 pages; technical comments),
        - Exhibit C, Markup of R6T-2022-(Proposed) (39 pages)
        - Exhibit D, Printout of Geotracker case information associated with Lake Tahoe Laundry Works, Big O Tires, Former Norma's Cleaners, South Y

Regional Contamination (Formerly Lukin Wells 2 &5), and South Y PCE sites (202 pages)

- Letter dated November 14, 2022 *Re: Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works Site, 1024 Lake Tahoe Boulevard, South Lake Tahoe, California/Supplemental Comment From Fox Capital Management Corporation* (2 pages, legal analysis)
  - Verdict Form, City of Modesto, Case No. CGC-98-999345 (filed October 24, 2022) (24 pages)

3. Morrison & Foerster LLP on behalf of Seven Springs
   - Letter dated September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site (15 pages, legal analysis)
     - Exhibit 1, *Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order* prepared by PES Environmental, Inc (PES) and EKI Environment & Water, Inc. (EKI) on behalf of Seven Springs Limited Partnership (Seven Springs) and Fox (90 pages; technical comments)
     - Exhibit 2, Figure 5 Dissolved PCE in Groundwater Plume Map (one page)
     - Exhibit 3, Printout of Geotracker case information associated with Lake Tahoe Laundry Works, Big O Tires, Former Norma's Cleaners, South Y Regional Contamination (Formerly Lukin Wells 2 &5), and South Y PCE sites (202 pages), and
4. PES Environmental, Inc (PES) and EKI Environment & Water, Inc. (EKI) on behalf of Seven Springs and Fox
   - *Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order* prepared by PES Environmental, Inc (PES) and EKI Environment & Water, Inc. (EKI) on behalf of Seven Springs Limited Partnership (Seven Springs) and Fox (90 pages; technical comments)

The Cleanup Team has attempted to identify, compile, and respond to the above comments in the two attachments provided. Response to the "technical" comments received is provided in Attachment 1 *Response to Comment Table*. Response to the "legal" comments received, including Fox's November 14, 2022 Supplemental Comments, is provided in Attachment 1 *Response to Comment* Table and Attachment 2 *Master Response for Legal Comments*. The Cleanup Team is not providing individual responses to Fox's September 19, 2022 Exhibit C, Markup of R6T-2022-(Proposed) as the comments contained in the "markup" have been addressed in the responses contained in Attachments 1 and 2 and proposed revisions to the Order can be viewed within the Proposed Revisions to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) Memorandum dated August 17, 2023

Attachments

Attachment 1: Response to Comment Table

Attachment 2: Master Response for Legal Comments

ATTACHMENT 1: RESPONSE TO COMMENTS TABLE

Response to Comments Memorandum dated August 16, 2023, Lake Tahoe Laundry Works, South Lake Tahoe, El Dorado County, SCP Case No. T6S043, Geotracker Global ID No. SL0601754315

1 Response to Comments Table

Comment No.	Commentor	Document	Page (Starting, Ending)	Comment[1]	Response
1	Lukins Brothers Water Company	September 16, 2022 RE:Request For Comments-Cleanup and Abatement Order No. R6T-2022-(Proposed)	2	Beyond reduced capacity, the regional PCE plume has imposed additional replacement water costs on LBWC that are not explicitly referenced in the Proposed CAO. As noted in the Staff Report, once the regional PCE plume impaired LBWC Wells 2 and 5 in 2014, LBWC was forced to purchase emergency replacement water from South Tahoe Public Utility District in order to meet customer demand (as LBWC has only one remaining well, Well 1, that is not contaminated with PCE). LBWC's emergency replacement water purchases continued for seven years until LBWC's new Well 5 GAC facility became operational in 2021, and cost LBWC a total of $284,050.00	The text of the Order reflects the text of the replacement water provisions in Water Code section 13304. We acknowledge that the Water Code does not provide equitable remedies or restitution for persons' or entities' past harm, and often dischargers must seek those remedies in civil litigation. We cannot provide parties with legal advice regarding recovery of past costs.
2	Lukins Brothers Water Company	September 16, 2022 RE:Request For Comments-Cleanup and Abatement Order No. R6T-2022-(Proposed)	2	LBWC also incurred significant costs to design, construct and operate its Well 5 GAC treatment plant and will incur significant costs to operate and maintain it into the future. As noted in the Staff Report, LBWC obtained Proposition 1 and Proposition 68 grant funds to design and construct the facility, but LBWC's funding agreement with the State Water Resources Control Board's Division of Financial Assistance provides, among other things, that LBWC "exercise reasonable efforts to recover the costs of groundwater cleanup from the parties responsible for the contamination." Accordingly, payment of these costs by the LTLW Dischargers should be an explicit component of the final CAO.	Comment Noted. See Response to Comment No. 1 (replacement water costs).
3	Lukins Brothers Water Company	September 16, 2022 RE:Request For Comments-Cleanup and Abatement Order No. R6T-2022-(Proposed)	2	Further, since the Well 5 GAC facility went online in July 2021, LBWC has directly incurred, and will continue to incur, ongoing costs to operate it, which includes, among other items, carbon replacement and maintenance costs as well as additional labor, power and laboratory charges.	Comment Noted. See Response to Comment No. 1 (replacement water costs).
4	Lukins Brothers Water Company	September 16, 2022 RE:Request For Comments-Cleanup and Abatement Order No. R6T-2022-(Proposed)	2	Water Code section 13304(a)-which provides the legal basis for the Proposed CAO's replacement water order- empowers the Water Board to issue cleanup and abatement orders that "require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner." Consistent with this statute, LBWC reads the Proposed CAO to already require reimbursement from the LTLW Dischargers to LBWC for all of the above-mentioned replacement water costs. Nonetheless, to remove any ambiguity and avoid a potential grounds for future conflict between the impacted municipal water providers and the LTLW Dischargers, and because LBWC has already incurred significant interim and permanent replacement water costs that should be subject to reimbursement, LBWC respectfully requests that the Water Board amend the Proposed CAO before it is finalized to explicitly state that reimbursement of the following categories of costs should be included in the LTLW Dischargers' Permanent Water Replacement Plan: (i) reimbursement for replacement water costs	Comment Noted. See Response to Comment No. 1 (replacement water costs).

[1] The comment text and format in table may paraphrase comment letters. Please refer to original comment documents to verify specific text or any footnote references.

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				already incurred by the municipal water providers, including costs for purchased water and costs to design, construct and operate PCE treatment facilities; and (ii) ongoing reimbursement for the costs to be incurred by municipal water providers to continue operating and maintaining their PCE treatment facilities.	
5	Lukins Brothers Water Company	September 16, 2022 RE:Request For Comments-Cleanup and Abatement Order No. R6T-2022-(Proposed)	3	LBWC appreciates and agrees with the Proposed CAO's finding that PCE from the LTLW site traveled through a stormwater conveyance system to Tucker Basin, which is where the highest PCE concentrations in the regional plume are now found. As previously noted by LBWC's consultant Weiss Associates, the top priority in terms of preventing further migration of, and ultimately containing, the regional PCE plume, should be remedial efforts focused on the Tucker Basin. To that end, the Water Board should ensure that the LTLW Dischargers' Remedial Action Plan include the following items: (i) installation of a well cluster within Tucker Basin to define the hydrogeology of the immediate area; (ii) identification of the areas within the basin that have the highest PCE concentrations; and (iii) remedial measures designed to target these areas of high PCE concentrations in soil and groundwater below and beyond the margins of the basin and prevent further migration of PCE from the area.	Comment Noted. Water Code section 13360 prohibits the Regional Water Boards from specifying, but not suggesting, methods that a discharger may use to achieve compliance with requirements or orders. It is the responsibility of the Dischargers to propose methods for Lahontan Water Board staff review and concurrence to achieve compliance with requirements or orders. As a practical matter, however, the Order requires complete delineation and also requires remedial actions to address discharges, so the high concentrations found in and/or near the Tucker Basin will be addressed.
6	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	1	Our comments address inaccurate and misleading statements in the Proposed Order and refute the Regional Board's scientifically flawed effort to ascribe groundwater contaminated by perchloroethylene (PCE) throughout the Tahoe Valley South Subbasin to the LTLW. This contamination is due to PCE releases at numerous sites and does not derive to any appreciable measure from PCE discharged at the LTLW. The Proposed Order is not needed to complete cleanup of the LTLW and should not be adopted because the LTLW has been fully characterized, effective remedial actions are in place, and the scope of work in the Proposed Order pertains to investigation and remediation of regional PCE contamination for which LTLW is not the cause.	We disagree. Despite numerous orders requiring the delineation of the lateral and vertical extent of PCE in soil, soil gas, and groundwater originating from the Site, the extent of PCE contamination has never been determined by the Dischargers. The Order is needed because the Dischargers have not delineated - let alone evaluated remedial actions for - the entire extent of discharge from the Site. The available data supports the conclusion that the Site is connected to the regional PCE plume, and affected receptors. In 2017, when evaluating whether to hold Dischargers responsible for the regional PCE plume, the former Executive Officer noted "there [was] insufficient evidence to link all PCE contamination in the region to Lake Tahoe Laundry Works site at this time." In response to the Executive Officer's observation, investigations conducted (1) by the Dischargers between 2017 and 2020 and (2) by AECOM in 2019 and 2020 (SCAP Regional PCE Plume Investigation) provided the depth-discrete groundwater quality data needed to confirm a "link" between the PCE contamination identified in groundwater at the Site, the regional PCE plume, and the affected receptors. The data collected by the Dischargers following 2017 CAO issuance (i.e., Discharger's 2018 off-Site step out investigation) confirmed that PCE contamination above the PCE MCL of 5 µg/L extends, without interruption, from the Site to the regional PCE plume in the South Y Area. These data showed the Site is contributing mass to the regional PCE plume and that the Site is irrefutably "linked" to the regional PCE plume. Similarly, the depth-discrete groundwater quality data collected by AECOM during the 2019 and 2020 SCAP Regional PCE Plume Investigation and current and historical non-municipal and municipal supply well sampling results showed PCE contamination within the regional PCE plume extends without interruption from the South Y Area to multiple receptors and that the regional PCE plume is irrefutably "linked" to multiple receptors (extending downgradient to the Tahoe Keys area). The estimated lateral and vertical extents of the regional PCE plume are presented in

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					AECOM's Regional Plume Characterization Summary Report: South "Y" PCE Plume 2019-2020 Field Season report. In addition, see *CAO Staff Report Section 3.1 Summary of Key Information Supporting Order Requirements, Conceptual Site Model* for discussion related to the Dischargers' current conceptual site model (CSM). The Dischargers' CSM is flawed and not supported by the available data. This results in incomplete and ineffective recommendations to investigate and clean up contamination originating from the Site. *CAO Staff Report Section 3.1* identifies seven deficiencies within the dischargers' current CSM, which need to be updated: 1) Off-Site migration of PCE contamination has occurred in the past and is still occurring. 2) Although there may be additional PCE sources contributing to the regional PCE plume, the regional PCE plume originates at the Site (the Dischargers could not identify any sources upgradient of the Site) and continues without interruption to the Tahoe Keys (and potentially beyond), 3) On-Site discharge of PCE has migrated off-Site through groundwater and has impaired and continues to impair the municipal and domestic supply (MUN) beneficial use of groundwater. 4) PCE contaminant transport from the Site has occurred since the initial release that occurred over 40 years ago and is still occurring despite the operation of the existing air sparging/soil vapor extraction (AS/SVE) system since 2010. 5) The existing AS/SVE system does not remediate the full extent of soil, soil vapor and groundwater contamination, nor does it control PCE that has migrated beyond the zone of capture of the system. 6) An effective vertical barrier to inhibit downward migration of contamination through groundwater does not exist on-Site and there is a hydraulic connection between shallow and middle water bearing zones. 7) The Site unquestionably meets all the Dischargers' PCE source criteria defined in the March 19, 2018 Amended Groundwater Investigation Work Plan and is a PCE source contributing to the regional PCE plume. As stated in Finding 32 of the Order, PCE in groundwater was found in every downgradient step-out groundwater sample location advanced from the Site's property boundary to the regional PCE plume (i.e., Dischargers' Phase I and Phase II groundwater investigations in Lake Tahoe Boulevard and Tucker Avenue). The Dischargers elected to not perform any step-out groundwater sampling downgradient of Tucker Avenue following the Phase II groundwater investigation or in areas downgradient of the off-Site monitoring wells, despite groundwater sampling results showing continuous PCE concentrations above the MCL extending from the Site to Tucker Avenue and beyond (i.e., off-Site monitoring wells). Off-Site well pairs, OS-3 (Roger Avenue) and OS-4 (James Avenue), are located approximately 1,000 feet from the Site and represent the most downgradient areas investigated relative to 2017 CAO requirements. Since no additional step out sampling was conducted by the Dischargers following the Phase II investigation, the Dischargers never completed the 2017 CAO requirements to delineate the extent of contamination originating from the Site and evaluate

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					remedial options for the full extent of discharge. Within months of adoption of the 2017 CAO, it was clear to Lahontan Water Board staff that the Dischargers had no intention of effectively or promptly conducting the required investigations to determine the lateral and vertical extent of contamination originating from the Site. Due to significant impacts to receptors (i.e., drinking water supply wells), requiring immediate corrective actions to protect public health, and the critical need to take action to characterize the regional PCE plume and identify potential PCE sources, Lahontan Water Board staff pursued a grant from the State Water Board's Site Cleanup Subaccount Program (SCAP) in 2018. On March 4, 2019, the Lahontan Water Board received a $4,600,200 SCAP grant (Department of General Services [DGS], 2019) to investigate the regional PCE plume in the South Y Area (SCAP Regional PCE Plume Investigation). Groundwater data collected during the SCAP Regional PCE Plume Investigation in 2019-2020 provided a reconnaissance-level snapshot of the lateral and vertical extent of the regional PCE plume, including the area between the Site and impacted receptors, where data gaps (i.e., a lack of groundwater data) previously existed. Investigation results confirmed the regional PCE plume extends to affected receptors without interruption and provides a general estimate of the lateral and vertical extent of the regional PCE plume. Lahontan Water Board staff recognize that additional data is needed, including an evaluation of potential health threats from the full extent of discharge and delineation of the "eastern lobe" of groundwater contamination. Based upon the failure to completely characterize the extent of the discharge, the Order requires determination of the full lateral and vertical extent of PCE contamination in soil, soil gas, and groundwater to investigate these data gaps and further characterize potential threats to human health and the environment and evaluate potential remedial options. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the entire extent of discharge originating from the Site.
7	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	2	The Regional Board states that "[s]pills/discharges associated with PCE delivery, handling, and disposal practices are the likely sources of waste discharge at the Site."[1] Seven Springs and Fox disagree with the Regional Board's characterization of the likely sources of PCE at the Site. The results of environmental investigations at the Site indicate that PCE released during delivery is the only source of contamination at the LTLW. Four investigative events were conducted between 2003 and 2006, which involved completing 35 boreholes and collecting 77 soil and 22 groundwater samples from them to assess conditions beneath the LTLW tenant space, parking lot in front of the building, and along the sanitary sewer and storm drain pipelines.[2] Investigative findings suggest the only significant source of discharge at the Site was associated with a release during PCE delivery that appears to have occurred in the parking lot in front of the building.[3] In the nearly twenty years of investigations of the LTLW, all of which were conducted under the direction of the Regional Board, no evidence of spills or discharges, other than in the parking lot, have been identified.[4]	We disagree. Lahontan Water Board staff acknowledge the most significant release(s) appear to have occurred in the parking lot area. However, available data indicates that discharges also occurred at other locations on the Site. Environmental sampling data support the conclusions in the Order that unauthorized releases of PCE occurred in the parking lot (soil, soil gas, groundwater, utility backfill) and underneath the existing building in the vicinity of the former coin operated dry cleaning unit (soil, groundwater, indoor air). In addition, the Staff Report discussion regarding *United Artists* provides significant substantial evidence of the known discharge mechanisms that routinely cause discharges at dry cleaner sites. The described mechanisms are consistent with the environmental data indicating discharges at the Site. Limited soil and groundwater sampling have been performed underneath the existing building; no indoor air sampling has been conducted without the SVE/AS system operating. Indoor air sampling conducted in 2015 (when the SVE/AS system *was* operating) indicated detectable PCE concentrations in indoor air, confirming potential threats to human health via the vapor intrusion to indoor air pathway and that additional evaluation of the potential threat via the vapor

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					intrusion to indoor air pathway to human health will be needed following cessation of operation of the remedial system.
8	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	2	The Proposed Order presents an inaccurate and incomplete depiction of the regulatory history of the Site that somehow omits the fact that Seven Springs and Fox have undertaken a lengthy, thorough, and objectively successful effort to remediate the Site. In Paragraphs 10 through 18, the Proposed Order summarizes the basic history of the Site without mentioning the considerable work by Seven Springs to address the presence of chlorinated volatile organic compounds (VOCs) and respond to the Regional Board's concerns since 2003, when the Regional Board initially contacted Seven Springs, or the actions that Seven Springs and Fox jointly took after 2008. Seven Springs and Fox have cooperated fully and have been engaged in a Site Cleanup Program with the Regional Board for more than a decade. As a result, the Regional Board should amend the Proposed Order to present a more complete discussion of the "Regulatory and Litigation History" portion of the Proposed Order.	We disagree. The Comment disregards substantial, significant evidence that not only have Dischargers failed to control migration of discharges of waste off-Site, they have not even completed remediation of discharges on their own Site, and threats to human health and the environment remain. Remedial actions were implemented approximately 30 years after the estimated initial discharge(s) of waste to the environment. Once implemented, the remedial actions were only designed to remediate on-Site vadose zone soils and shallow zone groundwater contamination within a "source area zone", approximately 375 feet (length) by 145 feet (width) by 30 feet deep, through volatilization and recovery. The AS/SVE system is not capable of remediating contamination outside this zone, including off-Site groundwater contamination that has migrated downgradient of Lake Tahoe Boulevard (i.e., the downgradient lateral limit of the AS/SVE system's zone of influence), and at depths below the influence of the air sparge wells (i.e., the vertical limit of the AS/SVE system's zone of influence). Verification monitoring has not been conducted because remediation is on-going and the remedial objectives have not been met. However, quarterly groundwater sampling of on- and off-Site monitoring wells (OS well pairs) at locations within and immediately down-gradient of the Site has consistently shown PCE concentrations above MCLs which indicates PCE contamination continues to migrate off-Site in areas both within, and beyond, the limits of AS/SVE system's horizontal and vertical zone of influence. The AS/SVE system that has been installed and operated is expected to have significant benefit in reducing PCE contamination in on-Site soil and shallow groundwater as evidenced by the 982 pounds of VOCs removed by the AS/SVE system and declining contaminant concentrations in soil gas and groundwater. However, the AS/SVE system operation has not successfully remediated on-Site PCE contamination such that recent PCE detections in on-Site and off-Site groundwater and soil vapor are below the PCE MCL of 5 µg/L for groundwater or the 67 µg/m^3 ESL for vapor intrusion. See *CAO Staff Report Section 6.1 Remedial Actions Conducted* and *Section 6.2 Remedial Action Observations* for discussion of cleanup actions. The remedial actions implemented to date have not been successful in achieving remedial objectives. Additional on-Site and off-Site remedial actions are necessary to cleanup soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater in order to protect human health and the environment. Further, although the Dischargers never fulfilled Order requirements to delineate the extent of contamination originating from the Site, the SCAP Regional PCE Plume Investigation activities provided a general understanding of the lateral and vertical extent of the regional PCE plume and an initial evaluation of impaired, impacted and threatened receptors. AECOM's investigation indicated one continuous regional PCE plume, which originates at the Site, and extends over a mile, without interruption, to the Tahoe Keys. AECOM estimated approximately 240 pounds of PCE remains within

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					the regional PCE plume. AECOM's estimate is in line with the Dischargers estimate of between 100 and 300 pounds and below the 770-3,300 pounds indicated by the DRI Model. Since the initial discovery of PCE contamination in 1989, municipal, small community system (SCS), and domestic supply wells in and around the regional PCE plume have been taken off-line, destroyed, or require wellhead treatment to remove PCE from groundwater prior to distribution while others remain threatened. Three municipal water districts (LBWC, TKWC, and the District), which supply ~97% of community water supply, have been affected by the regional PCE plume. LBWC had four of its five municipal supply wells impaired by the regional PCE plume. LBWC#2, LBWC #5, and TKWC #2, are currently impaired and had a total source capacity of 3.25 million gallons per day (MGD). The District estimates source capacities of municipal supply wells have declined by 10% or 32.4 MGD since 2011 due to impairment from the regional PCE plume[2]. Of TKWC's three wells, TKWC #2 is impaired and operating with wellhead treatment, whereas TKWC #1, is currently impacted and expected to be impaired within as little as two years. TKWC#1 has a source capacity of 1.44 MGD, which represents over 50% of the TKWC water system's maximum daily demand. The actual and potential threats posed by the regional PCE plume to the MUN beneficial use and to human health via the vapor intrusion to indoor air pathway remain largely unevaluated since the Dischargers never fulfilled Order requirements to delineate the full extent of discharge. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the entire extent of discharge originating from the Site. The "Regulatory and Litigation History" section of the Order was revised to clarify the individual recipients of the various 13267 orders issued between 2003 and 2009.
9	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	3	The Regional Board cites the issuance of Water Code § 13267 investigative directives in 2003, 2004, and 2005 and indicates that four investigations were performed at the Site between 2003 and 2006.[5] The Proposed Order goes on to state that "[a]lthough required in these WC section 13267 investigative orders, the lateral and vertical extent of PCE and other wastes was never determined."[6] This statement does not align with findings made by the Regional Board in earlier correspondence to Seven Springs and Fox. In an 18 April 2006 directive, provided in response to the results of an additional soil investigation, the Regional Board stated "[s]ampling was essentially successful in defining the vertical and lateral extent of solvent contamination in soil."[7] Additionally, on 8 April 2009, the Regional Board issued Investigative Order No. R6T-2009-0013 requiring submittal of a remediation workplan. The order specifically stated "[t]he lateral and vertical extent of tetrachloroethene (PCE) is defined in the vadose zone based on soil sample results and geologic cross sections."[8]	We disagree. Numerous EKI comments cite to Lahontan Water Board staff correspondence or conclusions regarding the scope of the investigation or extent of known contamination, but these prior conclusions were based on incomplete data sets and are irrelevant in view of the current state of the scientific data, which overwhelmingly supports the conclusions in the Order finding that the Site has contributed mass to the regional plume, is not completely delineated, and must be remediated. See Response to Comment Nos. 6 (incomplete delineation) and 8 (incomplete remediation.) In the April 2006 directive, Lahontan Water Board staff acknowledged that the investigation results at the time appeared to adequately characterize the solvent contamination in soil and groundwater at the Site to proceed with remedial option evaluation. Based on the PCE concentrations in soil threatening groundwater quality and the PCE concentrations in groundwater adversely affecting domestic and municipal beneficial uses, Lahontan Water Board staff required submittal of a corrective action plan to cleanup releases from the Site. The April 2009 Order specifically stated "*While it is unclear to what*

[2] 2020, Tahoe South Subbasin (6-005.01) Annual Report 2019 Water Year, page 32, South Tahoe Public Utility District, April 27.

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					extent contamination from this site extends to other properties and whether contamination for other properties comingle with groundwater contamination from this site, it is reasonable to plan and implement actions at this site to remove soil contamination and contain and treat groundwater resulting from this site, Therefore, I am requiring the responsible parties listed in this letter to propose remediation to remove the contaminant source in soil and control off-site migration of the groundwater plume. Such action is needed to protect the aquifer, which is designated for municipal and domestic supply." Lahontan Water Board staff's understanding of the lateral and vertical extent of PCE contamination for soil, soil gas, and groundwater media, has evolved as additional data, including data obtained during the Discharger's own investigations collected following 2017 CAO issuance and the State Water Board's SCAP Regional PCE Plume Investigation, has been collected. The Order is based upon all data, including the most recent data.
10	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	3	On 1 September 2009, the Regional Board accepted an Interim Remedial Action Workplan that concluded on-Site contamination had been delineated and was not migrating off the LTLW.[9]	Comment Noted. See Response to Comment 9 (prior statements and findings)
11	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	3, 4	The Proposed Order[10] mentions the 8 April 2009 directive, Remedial Action Workplan, and the Draft Remedial Action Plan,[11] dated 12 August 2010, that Seven Springs and Fox submitted to the Regional Board, but the Proposed Order fails to acknowledge the Regional Board's role in determining the scope of those documents. In particular, the Regional Board in its Staff Report[12] supporting the Proposed Order describes the area that it agreed should be remediated in 2008 as a "source area zone" that Seven Springs/Fox "predefined."[13]	CAO Revised. The word "predefined" has been removed from the Order. See Response to Comments Nos. 6 (incomplete delineation) and 8 (incomplete remediation).
12	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	4	Cleanup was not limited to the source area on the LTLW. During a meeting on 24 September 2008, Seven Springs/Fox and the Regional Board reached consensus that remediation should address all soil and shallow groundwater impacted by the discharge at the Site. The soil vapor extraction and groundwater air sparge system (SVE/GASS) implemented by Seven Springs/Fox addressed (1) vadose zone soil in the vicinity of the former laundromat tenant space and adjacent parking lot, and (2) shallow zone groundwater to 25 below ground surface (bgs) encompassing an area approximately 375 feet long by 145 feet wide.[14] In 2013, the Regional Board issued an order approving use of the SVE/GASS to "remediate contaminants in soil, soil gas, and groundwater."[15] The order stated that the case for the LTLW could be closed after verification monitoring for one year demonstrated chlorinated VOCs in groundwater remain at concentrations less than their respective maximum contaminant levels (MCLs) to "ensure restoration of beneficial uses to the drinking water aquifer" had been achieved.[16]	Comment Noted. See Response to Comments Nos. 9 (prior statements and findings based upon an incomplete dataset) and 8 (verification monitoring has not been conducted because remediation is ongoing; additional on and off-Site remedial actions are necessary to cleanup soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater).
13	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake	4,5	Seven Springs and Fox entered into a Stipulated Agreement for Replacement Water Supply[17] with the owners of properties at 883 and 903 Eloise Avenue at the request of the Regional Board. The Proposed Order cites the date of the agreement as 5 June 2015;[18] the	CAO Revised. Paragraph 15 of the Order was revised to reflect the actual date of the agreement, June 15, 2015. Lahontan Water Board staff understand that the Dischargers have refused to concede liability, but the Order

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		Tahoe Laundry Works Cleanup and Abatement Order		actual date of the agreement is 15 June 2015. Water samples collected from noncommunity water system wells at these properties in 2014 and 2015 contained PCE.[19] Seven Springs and Fox disagreed with the Regional Board about the source of PCE detected in samples from the wells, but nevertheless agreed to provide a replacement water supply (i.e., reimbursement for bottled water and for alternate permanent water supply). The Proposed Order does not mention that the agreement contains the following language: "[b]y agreeing to provide a replacement water supply, all Parties agree that neither Fox Capital nor Seven Springs admit to any liability under or any violation of the California Water Code or any other federal, state, or local law or ordinance."[20]	establishes the regional PCE plume begins at the Site and continues, uninterrupted, to various receptors, as documented by the SCAP Regional PCE Plume Investigation and domestic and municipal water supply well sampling results.
14	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	5	The Proposed Order at Paragraph 17 states that a Satisfaction of Stipulated Agreement for Replacement Drinking Water[21] was provided to Seven Springs and Fox on 17 February 2016. Left unsaid is that Seven Springs and Fox reimbursed the property owners at 883 and 903 Eloise Avenue a sum of $45,800 for expenses of obtaining bottled water as an interim water supply and connecting the two properties to a Lukins Brothers Water Company (LBWC) potable water line on Eloise Avenue that serves as an alternate permanent water supply.	Comment Noted. See Response to Comment No. 13 (stipulated agreement for replacement water).
15	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	5	Paragraphs 24 through 28 of the Proposed Order present an inaccurate and misleading depiction of Seven Springs/Fox's work in complying with the 2017 CAO. Extensive on-Site and off-Site sampling was conducted as part of the Preferential Pathway Evaluation, Off-Site Groundwater Investigation, and Data Gap Investigation implemented pursuant to the 2017 CAO and work plans approved by the Regional Board.	Comment Noted. The intent of the Findings is to note, generally, the investigatory and remedial activities that have occurred, and the data gaps and need for remedial action. The Order adequately describes the facts that Dischargers have not completed delineation of discharges from the site and have not remediated the extent of the discharge. See Response to Comment Nos. 6 (incomplete delineation) and 8 (incomplete remediation).
16	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	5	As discussed in Section 2.6, the results of the Stage 1 Preferential Pathway Evaluation do not indicate PCE migrated off-Site along utility lines or other subsurface features that could act as preferential pathways for PCE transport.	We disagree. The available data indicate (1) on-Site waste discharge to the stormwater conveyance system based on the distribution and magnitude of PCE mass in soil vapor and groundwater near stormwater conveyance inlets and the detections of PCE in soil within the stormwater conveyance system backfill, (2) off-Site contaminant transport via the stormwater conveyance system based on the stormwater conveyance system's configuration and the distribution and magnitude of PCE mass in soil vapor and groundwater near conveyance inlets and the discharge point into Tucker Basin, and (3) the evaluation of contaminant transport along the stormwater conveyance system remains incomplete. In addition, shallow groundwater and passive soil gas sampling data collected during the SCAP Regional PCE Plume Investigation indicate the stormwater conveyance system may be acting as a preferential pathway for contaminant transport and affecting regional PCE plume geometry. Continuous PCE concentrations in shallow groundwater extend from the Site to the City of South Lake Tahoe's stormwater conveyance system (i.e. Tucker Basin and beyond) and exceed residential and commercial groundwater vapor intrusion ESLs indicating that COC concentrations in shallow groundwater may pose a potential threat to human health and further investigation is warranted. See *CAO Staff Report Section 4.2.3 Dischargers' and other's Preferential Pathway Investigations* and *Section 8.4 Dischargers' Data Interpretation - Contaminant Transport Via Preferential Pathways* for discussion of

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					contaminant transport via preferential pathways. Preferential pathway investigation results confirm on-Site discharges to the sanitary sewer and stormwater conveyance system and off-Site contaminant transport via the stormwater conveyance system and potentially the sanitary sewer. The preferential pathway investigations required by the 2017 CAO remain incomplete. Lahontan Water Board staff also note that the Dischargers have identified the potential contaminant transport via the stormwater conveyance system from the Big O Tires site (see WHA's September 18, 2020 *Final Revised Phase I Passive Soil Gas Investigation Work Plan and* November 10, 2020 *Passive Soil Gas Investigation Report;* and PES's *December 15, 2020 Comments on Passive Soil Gas Sampling Report)* but have not identified the potential contaminant transport from the Site itself (see EKI's April 1, 2019 *Investigation Summary Report* and October 4, 2019 *Investigation Summary Report)*, in spite of both sites sharing similar characteristics and data (e.g., history of chemical use; elevated contaminant masses in soil gas at stormwater conveyance inlets; sharing stormwater conveyance piping to Tucker Basin). This is resulting in additional delay in completing the preferential pathway investigations required by the 2017 CAO. Available information indicates the Site and Big O Tires have both contributed mass to Tucker Basin and additional investigation is needed to evaluate potential threats. See Response to Comment Nos. 40 (discharge to stormwater conveyance system/Tucker Basin) and 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners). As such, Lahontan Water Board staff considers both parties to be responsible for further investigation and potential remediation within Tucker Basin and any related downgradient threats to human health and the environment.
17	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	6,7	The Proposed Order does not reflect the degree to which Seven Springs and Fox communicated with Regional Board staff on a regular basis. At the Regional Board's request, Seven Springs and Fox prepared and submitted Planning and Progress Reports (PPRs) and participated in meetings with Regional Board staff to discuss work by Seven Springs and Fox, and actions conducted by others regarding the regional groundwater PCE contamination. Seven Springs and Fox submitted 13 weekly PPRs from 9 October 2018 through 29 January 2019 (PPR Nos. 2 through 14),bi-weekly PPRs from 12 February 2019 through 19 November 2020 (PPR Nos. 15 through 31), and monthly PPRs from 17 December 2020 through 3 May 2022 (PPR Nos. 32 through 63). Generally, one telephonic meeting between consultants for Seven Springs/Fox and Regional Board staff was conducted during the period covered by each PPR.	We agree. The Order does not contain a complete record of the frequent and repeated written communications, urging the Dischargers to complete delineation and address the plume of contamination, and Dischargers repeated failure to comply. *CAO Staff Report Section 4.1.5 Communication Following Issuance of the 2017 CAO* attempts to summarize relevant communications following 2017 CAO issuance. We note, however, that there is no need to document each and every communication in the body of the Order. The relevance of the communications documented in the Order is primarily support for the finding that an Order is necessary; (i.e., despite frequent and repeated communications to the Dischargers, they have failed to complete delineation and/or remediation).
18	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	7	During these meetings and as reflected in the associated PPRs, Seven Springs and Fox presented investigative results and explained difficulties with executing planned work at the former Big O Tires facility. Seven Springs and Fox made the need for access to the Big O Tires site clear during regular telephonic meetings with the Regional Board and in PPRs submitted prior to the meetings. In November 2018, Seven Springs and Fox submitted a letter to owners of the former Big O Tires facility requesting access to perform the work.[28] Property representatives did not respond to this request or to a follow-up request made by Seven Springs/Fox[29] in December 2018. In	We disagree. Lahontan Water Board staff acknowledge the challenge that Seven Springs and Fox have faced with obtaining access to the Big O Tires site to collect the data necessary to address several data gaps. However, available data collected both upgradient and downgradient of the Big O Tire site is sufficient to support the Findings of this Order. As stated in Response to Comment No. 6, the data collected by the Dischargers following 2017 CAO issuance (i.e., Discharger's 2018 off-Site step out investigation) confirmed that PCE contamination above the PCE MCL of 5 µg/L extends, without interruption, from the Site to

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				January 2019, Seven Springs and Fox sought Regional Board assistance in gaining access to the former Big O Tires facility.[30] In spite of these requests, no assistance from the Regional Board was forthcoming. As a result, Seven Springs and Fox were prevented from conducting work essential to understanding if investigation of Tucker Basin by Seven Springs/Fox was appropriate based on a determination that the discharge at LTLW had impacted the basin. The Regional Board indicated it would assist with access to the Big O Tires site; Seven Springs and Fox are not aware of any assistance that might have been provided.[31]	the regional PCE plume in the South Y Area. These data showed the Site is contributing mass to the regional PCE plume and that the Site is irrefutably "linked" to the regional PCE plume. Similarly, the depth-discrete groundwater quality data collected by AECOM during the 2019 and 2020 SCAP Regional PCE Plume Investigation and current and historical non-municipal and municipal supply well sampling results showed PCE contamination within the regional PCE plume extends without interruption from the South Y Area to multiple receptors and that the regional PCE plume is irrefutably "linked" to multiple receptors (extending downgradient to the Tahoe Keys area). Lahontan Water Board staff acknowledge the importance of collecting the data necessary to address the remaining data gaps at the Big O Tires site, especially collecting the data necessary to determine if PCE contamination originating from the Big O Tire site is contributing PCE mass to the regional PCE plume (i.e., is the Big O Tire site "linked" to the regional PCE plume?). To address these data gaps and determine if the Big O Tire site is linked to the regional PCE plume, Lahontan Water Board staff issued Water Code Section 13267 directives on May 10, 2019 to Big O Tire site responsible parties, which required the responsible parties of the Big O Tire site to perform the required site investigations. Those orders alleviated the need for Seven Springs and Fox to gain access to the properties, and instead required the work and associated data reporting (which will be made available to the Dischargers) to be performed by the Big O Tire site's responsible parties. The orders to Big O Tire site required investigation work plans to evaluate the identified data gaps, including determining the lateral and vertical extent of contamination from past unauthorized releases and evaluating potential contaminant transport along preferential pathways (i.e., Tucker Basin).The Lahontan Water Board staff referred the failure to comply with these orders to the State Water Board Office of Enforcement, who has issued administrative civil liability complaints for violations of these directives. Lahontan Water Board staff also released a draft CAO on June 16, 2022 to address discharges at the Big O Tires site. Lahontan Water Board staff also note that there is not an access impediment to investigate Tucker Basin and that available information indicates that the both the Site and the Big O Tire site, have contributed PCE mass to Tucker Basin and additional investigation is needed to evaluate potential threats. As such, Lahontan Water Board staff considers both parties to be responsible for further investigation and potential remediation within Tucker Basin and any related downgradient threats to human health and the environment. See Response to Comment No. 16 (discharge to stormwater conveyance system/Tucker Basin; incomplete preferential pathway investigation). Lahontan Water Board staff have also consistently communicated to the Dischargers that identification of other chlorinated hydrocarbon sources does not release the Dischargers from their responsibility to fully define the lateral and vertical extent of contamination migrating from the Site, nor does identifying such sources mean that investigation goals have been met and LTLW's investigation can be considered complete. See Response to Comment No. 19 (concerns with investigation strategy).

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19	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	7	Actions by Seven Springs and Fox that established the lateral and vertical extents of chlorinated VOCs associated with the LTLW are not accurately described in the Proposed Order. The Proposed Order incorrectly states that "[d]espite these regular communications, the Dischargers elected to focus on finding additional potential dischargers."[32] This inaccurate statement should be removed as it ignores Seven Springs/Fox (1) undertook extensive on-Site and off-Site work at the Regional Board's request, and (2) attempted to conduct additional off-Site work, but were precluded from doing so because they were denied access and the Regional Board did not respond to requests from Seven Springs/Fox to obtain access.	We disagree. The statement in the Order is accurate as written. Lahontan Water Board staff acknowledge the work performed by the Dischargers to comply with 2017 CAO requirements, including the attempts to address identified data gaps at the Big O Tires site. However, despite regular communications over the course of four years where Lahontan Water Board staff regularly 1) requested updates on the Dischargers' progress in determining the lateral and vertical extent of PCE discharges originating from the Site; 2) reminded the Dischargers that determining the lateral and vertical extent of PCE was a critical component of the 2017 CAO; and 3) informed the Dischargers that identification of other potential PCE sources that may be contributing to the regional PCE plume does not mean investigation objectives have been met, the extent of PCE contamination originating from the Site has never been determined by the Dischargers. See Response to Comment No. 6.(incomplete delineation). Due to the Dischargers' investigation strategy of focusing on identifying other potential PCE sources rather than extent of the PCE migration, the lateral and vertical extent of PCE contamination originating from the Site was not determined by the Dischargers. Because the 2017 CAO only required submittal of a remedial action plan after completion of site investigation, the Dischargers have continued to successfully evade addressing the impacts of the PCE discharge since the issuance of the 2017 CAO. See Response to Comment No. 18 (access issues). See also *CAO Staff Report Section 4.1.5 Communication Following Issuance of the 2017 CAO* for discussion about CAO requirements, investigation strategy, and schedule.
20	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	8	The Proposed Order erroneously states that the Regional Board pursued a grant from the State Water Resources Control Board's (State Water Board's) Site Cleanup Subaccount Program (SCAP) due in part to delay by Seven Springs/Fox.[33] Under the 2017 CAO, Seven Springs and Fox conducted the Preferential Pathway Evaluation and Data Gap Investigation to the extent possible and implemented three phases of the Off-Site Groundwater Investigation. Prior to issuance of the 2017 CAO, Seven Springs and Fox conducted a voluntary off-Site investigation. Rather than pursue the SCAP grant because of any failure by Seven Springs/Fox, the Regional Board's own press release states that it sought the grant because "[s]everal businesses in the South Y area are known or suspected to have used, stored, or disposed of PCE or PCE-containing products" and the Regional Board pledged to use a $4.6 million SCAP grant to "track down all potential sources of pollution" to regional groundwater PCE contamination.[34] As discussed in Section 2.1, the Regional Board has endeavored to identify PCE sources since the Tahoe South Y PCE Investigation commenced after discovering contamination in public water system wells in 1989.	We disagree. Lahontan Water Board staff acknowledge it has been investigating potential sources of the regional PCE plume since its initial discovery of PCE in municipal supply wells in 1989. The Lahontan Water Board identified the Site as a discharger of PCE on April 12, 2004. Since then, despite numerous orders requiring the delineation of the lateral and vertical extent of PCE in soil, soil gas, and groundwater originating from the Site, the Dischargers have never determined the extent of PCE contamination originating from the Site. Within months of adoption of the 2017 CAO, it was clear to Lahontan Water Board staff that the Dischargers had no intention of effectively or promptly conducting the required investigations to determine the lateral and vertical extent of contamination originating from the Site. Due to significant impacts to receptors (i.e., drinking water supply wells), requiring immediate corrective actions to protect public health, and the critical need to take action to characterize the regional PCE plume and identify potential PCE sources, Lahontan Water Board staff pursued a grant from the State Water Board's SCAP in 2018. The SCAP grant included funding requests for both regional PCE plume delineation and source identification related tasks. On March 4, 2019, the Lahontan Water Board received a $4,600,200 SCAP grant (Department of General Services [DGS], 2019) to investigate the regional PCE plume in the South Y Area (SCAP Regional PCE Plume Investigation). Funding for source identification tasks was not approved by the State Water Board in the 2019 SCAP grant. Lahontan Water Board staff are continuing to pursue SCAP funding for source identification related

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					tasks. See Response to Comment No. 6 (incomplete delineation) and *CAO Staff Report Section 4.2.4 State Water Board's Regional PCE Plume Investigation* for additional discussion of the SCAP grant.
21	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	8	The Proposed Order observes verification monitoring has not been conducted at the LTLW.[35] Under the 2017 CAO, the SVE/GASS is to be operated "in accordance with previously accepted work plans and proposals."[36] Investigative Order R6T-2013-0064 requires verification monitoring after remediation of the LTLW is completed.[37] As remediation is ongoing, verification monitoring would be premature "to ensure restoration of beneficial uses,"[38] which is the intent of such monitoring.	Comment Noted. See Response to Comment No. 8 (verification monitoring has not been conducted because remediation is on-going, and remedial objectives have not been achieved).
22	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	8,9	The Regional Board contends that a discharge at the LTLW is responsible for the so-called "South Y PCE Plume," an area of groundwater containing PCE within the Tahoe Valley South Subbasin that the Regional Board asserts is approximately 1.5 miles long and 1 mile wide.[39] The Regional Board claims that the LTLW is at the "head of a contiguous plume,[40] that extends, without interruption, to the Tahoe Keys to the north and to depths of up to approximately 240 feet below ground surface (bgs)."[41] The Regional Board's depiction of the contamination is shown on Figure 8 of the Proposed Order ("Regional PCE Contamination"). The Proposed Order and Staff Report's claims are at odds with the Regional Board's previous recognition that PCE contamination in the Tahoe Valley South Subbasin is caused by multiple sources and its past acknowledgement that only localized impacts resulted from a PCE discharge on the LTLW.[42] As explained in many submittals to the Regional Board, data obtained from extensive investigations completed by Seven Springs and Fox demonstrate the Regional PCE Contamination (1) is not a uninterrupted plume that originates from the LTLW, (2) is not attributable to a single source but is due to PCE releases at numerous sites, and (3) does not derive to any appreciable measure from PCE discharged at LTLW either before or after commencement of on-Site remediation.	We disagree. See Response to Comment Nos. 9 (prior statements and findings) and 6 (incomplete delineation). In addition, Lahontan Water Board staff have reviewed Dischargers' submissions and technical conclusions and compared those with more recent and more comprehensive data. The current dataset supports the Order's conclusion that there is a plume of PCE contamination that begins at the Site and continues, uninterrupted, to various receptors. Figure 8 of the Proposed Order is excerpted from AECOM's *Regional Plume Characterization Summary Report: South "Y" PCE Plume 2019-2020 Field Season* report. AECOM developed a three-dimensional visualization model of lithology and PCE concentrations in groundwater using EVS software developed by C Tech Development Corporation. AECOM's visualization model includes site specific data collected by AECOM, the Dischargers, and others from 2017 to 2020. AECOM's EVS data visualization tool presents a reasonable statistical estimate and depiction of the regional PCE plume utilizing recent (post 2017 CAO; 2017-2020) groundwater data collected by both the Dischargers and AECOM. The Dischargers' consultants have been unable to identify any potential upgradient sources or PCE plume that migrated onto, and through the Site, before commingling with, or creating, the regional PCE plume identified in the South Y Area. Based on data collected during the Discharger's June and July 2017 self-directed groundwater investigation and the March and April 2019 Phase III groundwater investigation, PCE detected in groundwater on-Site represents the most upgradient detection of PCE above the MCL in the South Y Area. In other words, the regional PCE plume originates at the Site, migrates under the influence of horizontal and downward vertical groundwater hydraulic gradients, and cannot be attributed to other upgradient PCE sources. See *CAO Staff Report Section 4.3 Evaluation of Potential Sources to the Regional PCE Plume* and *CAO Staff Report Section 8.3 Dischargers' Data Interpretation - Additional Potential Upgradient Sources* for discussion and evaluation of potential sources upgradient of the Site. In addition to Dischargers' investigation, to facilitate the identification of additional potential sources of PCE contributing PCE mass to the regional PCE plume, AECOM developed a "source area inventory" to support the State Water Board's Regional PCE Plume Investigation. Although additional work is required to address a number of data gaps, the "source area inventory" represents the most comprehensive effort

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					conduced to date to identify and prioritize potential sources of PCE contamination contributing PCE mass to the regional PCE plume. No source has been identified upgradient of the Site.
23	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	9	The Proposed Order states that PCE was first reported in public water system wells in 1989 within the South Y Area of South Lake Tahoe and states various parties have undertaken efforts to investigate and remediate PCE discovered in the wells.[43] The Proposed Order omits important details of these investigative and remedial efforts, and in the process fails to include information about known sources upgradient of the Regional PCE Contamination.	We disagree. As a general principle, the Order is not intended to encompass every detail of investigative and remedial efforts. The Order does contain sufficient information supporting the determination that the Dischargers have failed to complete delineation (see Response to Comment No. 6 [incomplete delineation]), have not remediated the extent of the discharge (see Response to Comment No. 8 [incomplete remediation]), and such remediation is necessary to protect human health and the environment (see Order paragraphs 45 and 46). Lahontan Water Board staff have evaluated and rejected the claim that there are upgradient sources (see Response to Comment No. 22 [no upgradient sources]).
24	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	10	The Regional Board initiated the Tahoe South Y PCE Investigation upon discovery of contamination in public water system wells.[48] As part of this investigation, the Regional Board performed two soil gas surveys, researched current and historical businesses that may have used PCE in the South Y Area, visited the businesses and interviewed their owners and operators, and provided funding to STPUD to identify the cause of PCE detected in public water system wells.[49] The Regional Board discontinued the Tahoe South Y PCE Investigation in 2015.	Comment Noted. The Tahoe South Y PCE investigation, aka South "Y" PCE, SCP Case #T6S013, was administratively closed by the former Lahontan Water Board caseworker, Lisa Dernbach, around the time the 2015 Proposed CAO for Lake Tahoe Laundry Works was issued. That case has remained listed as inactive in GeoTracker since 2015. Lahontan Water Board staff opened South Y Regional Contamination (Formerly Lukin Wells 2 & 5), SCP Case #T6S077, in 2014, and have been utilizing this case number as a repository for information concerning the regional PCE contamination following issuance of the 2017 CAO. The case is currently active.
25	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	10	The Clement Avenue, Julie Lane, Tata Lane #4, and South Y Center wells were in the upgradient direction of groundwater flow from the LTLW, as was Industrial Avenue #2 well that also contained PCE.	We disagree. See Response to Comment No. 22 (no upgradient sources). Lahontan Water Board staff acknowledge that the Clement Avenue, Julie Lane, Tata Lane #4 and South Y Center wells are located to the south and west of the Site in inferred upgradient locations, but also note the close proximity of the Site to the referenced municipal wells (i.e., all are within 1,500' of the Site) and the historical capture zones of the aforementioned wells and their likely effect on contaminant transport. Tata #4 and Julie Lane wells were first determined to be impaired by PCE in 1989; the Clement Avenue well was impaired by PCE in 1991. Between 1992 through 1999, the District operated a Packed Column Air Stripper to remove PCE and methyl tertiary-butyl ether (MTBE) from groundwater pumped from the Julie, Clement, Tata #4, and South Y wells. The Julie Lane, Tata #4, and South Y Center wells were destroyed in 2006; the Clement well has remained inactive since 1999. As stated in EKI's April 1, 2019 *Investigation Summary Report* (April 2019 ISR), the middle zone's groundwater flow direction shifted towards the west under the influence of maximum drawdowns created by municipal water supply well operations to the west of the Site prior to 2000; once pumping at the municipal wells located to the west ceased, the groundwater flow direction in the middle zone shifted back towards the north-northwest. Given the proximity to identified on-Site PCE contamination and influence of historical pumping operations in the Site vicinity, the detections of PCE in the aforementioned wells represent migration of PCE contamination from the Site, and do not support the interpretation of potential upgradient source(s). Groundwater samples collected from the Clement Avenue well

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					following pumping cessation in 1999 (a total of 95 groundwater samples) have not showed PCE concentrations above the MCL. The observation that PCE was consistently detected in the Clement Avenue Well during pumping operations, but PCE detections decreased over time to "non-detects" after pumping operations ceased, provides direct evidence that the historical capture zone of the Clement Avenue well was influencing the past migration direction(s) of PCE contamination originating from the Site. See *CAO Staff Report Figure 26 Receptor Inventory* for well locations.
26	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	10	The Regional Board did not require delineation of impacts to groundwater off the property when it closed the Tahoe Asphalt case in 2004.	Comment Noted. Conditions at Tahoe Asphalt at the time of closure did not support the need for additional off-Site delineation. Remedial actions had been conducted (i.e., excavation) and potential receptors (e.g. Industrial Well #2) did not appear to be threatened. No new information has been presented to warrant a change to the 2004 case closure. See also Comment Nos. 9 (prior conclusions based upon incomplete data set), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors; no upgradient sources), 6 (incomplete delineation), 8 (incomplete remediation; need for remediation).
27	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	10	Contamination discovered at other sites along Shop Street and Industrial Avenue also has not been fully characterized. For example, the Regional Board reported that 26 micrograms per liter (µg/L) of PCE was detected in a monitoring well in September 1997 at the Campora Gas property at 1640 Shop Street.[52] Neither the source nor the lateral and vertical extents of this contamination has been established to the laboratory analytical method reporting limit of 0.5 µg/L, which is the requirement imposed by the Proposed Order.[53] The actual maximum concentration of PCE in groundwater beneath the Campora Gas property is not known.	Comment Noted. First, see Master Response to Legal Comments, section I. Second, while Lahontan Water Board staff acknowledge the existing data gaps in historical investigations conducted along Shop Street and Industrial Avenue, the available data does not currently support the presence of source areas contributing to the regional plume in the Shop Street/Industrial Avenue area. In EKI's Amended Groundwater Investigation Work Plan, EKI describes the criteria to be used to identify potential source properties following 2017 CAO issuance. Based on the described criteria, a site is considered to be a source if (1) operations associated with solvent use took place on the property; (2) site-specific information, such as chemical use inventories, disposal records, soil samples with detections of VOCs, and/or elevated VOC concentrations in soil gas samples, indicate chlorinated solvents were used on the property; and (3) VOC concentrations in groundwater samples collected from locations downgradient of the potential source are significantly higher than VOC concentrations in groundwater samples collected in the same hydrogeological unit from locations upgradient of the potential source]. Groundwater data collected during the SCAP investigation in 2019 and 2020 provide a reconnaissance level snapshot of the lateral and vertical extent of the regional PCE plume. If the Shop Street/Industrial Avenue area contained source areas contributing to the regional PCE plume, it would be expected that step out sampling would have provided indication of elevated PCE concentrations in groundwater in this portion of the regional PCE plume as indicated by the source identification criteria. But Borings CPT-A03, CPT-A06, Sonic 18 and Sonic 7—which are step-out borings located along the western edge of the regional PCE plume –do not indicate any PCE concentrations above the MCL at any of the depths investigated.

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					To facilitate the identification of additional potential sources of PCE contributing PCE mass to the regional PCE plume, the Lahontan Water Board staff directed AECOM to develop a "source area inventory" to support the State Water Board's Regional PCE Plume Investigation. LTLW Dischargers contributed historical and chemical use information regarding numerous businesses in the area to this source area inventory. Although a number of data gaps remain, the "source area inventory" represents the most comprehensive effort conduced to date to identify and prioritize potential sources of PCE contamination contributing PCE mass to the regional PCE plume. Every currently identified potential source area, including the Campora Gas property, is recorded on AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing to the regional PCE plume. See *CAO Staff Report Section 4.3.2 Dischargers' Additional Source Evaluations* for additional discussion of the past and ongoing investigations of additional sources. The Order requires the CSM to be updated using consistent source identification criteria that is acceptable to the Lahontan Water Board.
28	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	11	Although the Regional Board considered the STAGE Bus site to be a potential source of groundwater contamination because PCE and other VOCs were detected in the sewer, it did not require investigation of deeper groundwater and closed the STAGE Bus case based on the limited sampling that was performed.[57]	Comment Noted. See Response to Comment No. 27 (identification and naming of other dischargers). A March 4, 1999 No Further Action letter was issued to "the Stage Bus Properties" after an initial groundwater investigation did not report PCE in groundwater in any of the six groundwater samples that were collected from temporary wells screened across the water table surface (i.e. PCE contamination in shallow groundwater was not observed). Every currently identified potential source area, including the STAGE Bus property, is recorded on AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
29	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	11, 12	The Regional Board concludes that the analytical results of grab groundwater samples collected from two boreholes (i.e., KM1 and KM2) near Kmart at the South Y Center and three boreholes along Tata Lane (i.e., LTLW-GW-16, LTLW-GW-17, and LTLW-GW-18) demonstrate "[n]o sources of PCE were identified upgradient from the Site."[58] Seven Springs and Fox conducted sampling near Kmart to assess if identified off-Site sources in the Shop Street/Industrial Avenue area were adding PCE to groundwater beneath the LTLW.[59] Sampling along Tata Lane was performed at the direction of the Regional Board[60] and was constrained to public right of ways. No sampling was conducted at properties within the Shop Street/Industrial Avenue area that are known or suspected PCE sources to groundwater. Of the grab groundwater samples collected near Kmart and along Tata Lane,[61] PCE was detected in only one sample at 0.64 µg/L obtained from the middle zone at LTLW-GW-18. This concentration is above the PCE delineation requirement of 0.5 µg/L established by the Proposed Order.	Comment Noted. See Response to Comment No. 27 (identification and naming of other dischargers). The referenced groundwater sampling along Tata Lane did not indicate the need for additional step out sampling. Six discrete depth groundwater samples were collected from LTLW-GW-18 from depths between 6 and 69 feet bgs. Of the six groundwater samples collected from LTLW-GW-18, PCE was only detected at a concentration of 0.64 ug/L between 50-54 feet bgs; no other discrete depth groundwater samples contained PCE. PCE was not reported in any groundwater samples collected from LTLW-GW-17, LTLW-GW-18, KM1 or KM2. These discrete groundwater sampling results (i.e., Phase III groundwater investigation) did not identify any potential upgradient sources or PCE plume that migrated onto, and through the Site, before commingling with, or creating, the regional PCE plume identified in the South Y Area. See Response to Comment No. 22 (no upgradient sources; regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
30	PES/EKI	September 19, 2022 Subject: Comments on	12	Even if chlorinated solvent releases at upgradient properties are not affecting conditions at the LTLW, PCE from upgradient off-Site sources may be contributing PCE at concentrations greater than 0.5	We disagree. Available data does not support the presence of sources upgradient of the Site or in the Shop Street/Industrial Avenue area. See Response to

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		Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order		µg/L to the Regional PCE Contamination. In 2016, STPUD retained the Desert Research Institute (DRI) to examine the fate and transport of PCE in groundwater within the Tahoe Valley South Subbasin as part of a feasibility study evaluating remedial alternatives for the contamination. The State Water Board funded preparation of the feasibility study.[62] Particle tracking by DRI's resulting numerical groundwater flow model indicates groundwater from the Shop Street/Industrial Avenue area bypasses the LTLW as it moves into the Regional PCE Contamination.[63] Consequently, the magnitude of the impact on groundwater quality from sources upgradient of the LTLW is unknown because the Regional Board has not required or performed an adequate investigation of groundwater potentially impacted by off-Site sources in the Shop Street/Industrial Avenue area.	Comment Nos. 22 (no upgradient sources), 27 (evaluation of Shop Street/Industrial Avenue area as a potential source) and 59 (DRI model not used to support Order findings).
31	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement \Order	12,13	The Regional Board's current conceptual site model (CSM) — that the Regional PCE Contamination is an uninterrupted plume that derives exclusively from the LTLW — is incorrect and conflicts with the Regional Board's earlier findings. In issuing the 2017 CAO, Patty Kouyoumdjian, the Regional Board's Executive Officer at that time, concluded that: . . .there is insufficient evidence to link all PCE contamination in the region to Lake Tahoe Laundry Works site at this time. It is possible that there are other parties responsible for portions of the PCE, which merits additional investigation. It is also possible that there are portions of the PCE plume that we are unable to tie back to a responsible party, and I want to better understand the orphan share of the regional plume if we determine, from the required investigation results, that other sources have contributed to the PCE contamination.[64] In Paragraph 7 of the 2017 CAO, the Regional Board stated: After consideration of the available information and comments received on the proposed CAO and the revised proposed CAO, the Site and regional groundwater investigations performed to date have not generated conclusive data identifying or eliminating the Site as the sole source of the regional PCE plume. Existing groundwater quality data cannot definitely link contaminant concentrations detected in the municipal and domestic supply wells in the region to the Site given insufficient data produced by limited scopes of the site specific and regional investigations conducted to date, the distribution of contaminants reported, location of other potential sources, the significant amount of time that has passed since the alleged historical PCE release(s) at the Site in the 1970s, and the significant fluctuations in the groundwater table from decades of intermittent municipal supply well pumping. As a result, current evidence is insufficient to require the cleanup and abatement of the regional PCE plume under California Water Code section 13304. Nevertheless, the Regional Board now contends that the investigations it performed in 2019 and 2020 have "conclusively establish[ed]" that Regional PCE Contamination originates from the Site.[65] However, the Proposed Order does not resolve critical issues	We disagree. See Response to Comment Nos. 9 (prior statements based upon an incomplete data set), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), and 27 (identification and naming of other dischargers). In this case, the Discharger and SCAP investigation activities conducted after the 2017 CAO resolved the questions raised by the Executive Officer in 2017 and provide substantial evidence supporting the Order. The passage of time does not insulate Dischargers from liability, particularly here, where Dischargers' recalcitrance has led to ongoing and unmitigated migration of known, significant discharges from the Site. Finally, we note, as an aside, that Lahontan Water Board staff did not develop and present a CSM but have reached these conclusions based upon currently available data, including data obtained by the Dischargers in partial fulfillment of the 2017 CAO requirements. One of the tasks in the Order is a requirement to update the CSM to accurately represent the nature, extent and fate of contamination originating from the Site so that investigation work plans can be developed to evaluate remaining potential threats to human health and the environment and support recommendations to achieve remedial objectives.

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				raised by the Regional Board in the 2017 CAO, such as the need to "definitely link contaminant concentrations detected in the municipal and domestic supply wells in the region" in light of off-Site sources, the "significant amount of time that has passed" since releases occurred in the 1970s, or the significant fluctuations in the groundwater table as a result of "decades of intermittent municipal supply well pumping."	
32	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	13	The Regional Board has long understood that a single source may not be solely responsible for the Regional PCE Contamination. For instance, the Regional Board has determined the former Big O Tires facility at 1961 Lake Tahoe Boulevard and the former Norma's Cleaners (i.e., Hurzel) site at 961 Emerald Bay Road, both located squarely within the Regional PCE Contamination, are sources of PCE to groundwater.	Comment Noted. The investigation continues concerning other potential dischargers contributing mass to the regional PCE plume but is not a reason to delay issuing this Order, which identifies substantial evidence demonstrating that investigation is incomplete, remediation is incomplete, and the Site is irrefutably linked to the regional PCE plume and various receptors. Enforcement actions have been initiated and are ongoing at the Big O Tires and Former Norma's Cleaners sites. Conducting a comprehensive investigation to address identified data gaps at the Big O Tires and Former Norma's Cleaners sites is necessary to evaluate those sites' potential contribution to the regional PCE plume. The proposed Orders for Big O Tires and Former Norma's Cleaners require cleanup and abatement of discharges and/or threats of discharges, which would include discharges contributing mass to the regional PCE plume. In the event that data and analysis, including an updated CSM, provide substantial evidence upon which the Lahontan Water Board can name additional dischargers, the Order provides flexibility to add additional dischargers. See Response to Comment Nos. 18 (orders issued to Big O Tires and Former Norma's Cleaners) and 27 (ongoing investigation of other sources).
33	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	14, 15	On 16 June 2022, the Regional Board issued proposed CAOs to investigate and remediate contamination on and off the former Big O Tires and Norma's Cleaners sites. Relying in part on the results of investigations performed by Seven Springs and Fox, the proposed CAO for the former Big O Tires facility states that PCE contamination in groundwater is migrating from the former Big O Tires facility.[74] The proposed CAO for Norma's Cleaner states PCE contamination leaching from site soil into groundwater has allowed the off-site migration of PCE in groundwater to occur.[75] These proposed CAOs show that the Regional Board is aware that the Regional PCE Contamination is not a single plume originating from one source.	Comment Noted. Lahontan Water Board staff acknowledge the potential for additional sources to be contributing mass to the regional PCE plume. The outstanding directives at the Big O Tires and Former Norma's Cleaners sites have been issued to evaluate the potential linkage of PCE contamination identified at the sites and the regional PCE plume. The investigations conducted to date indicate the general geometry of one continuous regional PCE plume, approximately one mile long, which originates at the Site and extends without interruption through the South Y Area to the Tahoe Keys. The available information does not indicate any separation between the Site, the regional PCE plume and affected receptors. See Response to Comment Nos. 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners),22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), and 27 (joint and several liability).
34	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	15	The Regional Board's contractors and other stakeholders also reached findings that contradict the Proposed Order's conclusions. In 2016, an off-Site groundwater investigation conducted by URS Corporation Americas (URS) on behalf of the Regional Board found that: PCE detections in the eastern end were separated from PCE detections in the western end by 1,100 feet and three locations showing non-detect concentrations. This information suggests separate PCE sources for each end of the study boundary.[76] If the Regional Board currently believes that URS's conclusion is	We disagree. See Response to Comment No. 9 (prior conclusions based upon incomplete data set). The URS investigation was based on a subset of data (42 groundwater samples to depths up to 32 feet bgs at 22 locations), and the conclusions are contradicted by the vast additional data collected (620 groundwater samples to depths up to 320 feet bgs at 79 locations) collected during the SCAP Regional PCE Plume Investigation, which establishes the general geometry of a regional PCE plume, over one mile long, which originates at the Site and extends, uninterrupted, to various receptors through the South "Y" Area to the Tahoe Keys. Of the 42 groundwater samples collected during the URS investigation, 6

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				incorrect, the Regional Board should identify specifically what it believes to be the flaws in URS's analysis.	contained detectable PCE at concentrations ranging from 0.6 to 3 µg/L. No groundwater samples contained PCE at concentrations above the PCE MCL of 5 µg/L. The URS investigation results did not identify potential sources contributing to the regional PCE plume or provide data showing separation between the Site, the regional PCE plume, and affected receptors. In contrast, the SCAP Regional PCE Plume Investigation and Dischargers' own investigation establish the regional PCE plume originates at the Site, migrates under the influence of horizontal and downward vertical groundwater hydraulic gradients, and cannot be attributed to other upgradient PCE sources. See Response to Comment Nos. 22 (Site is irrefutably contributing mass to regional PCE plume; regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) and 27 (identification and naming of other dischargers).
35	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	15	Similarly, the Regional Board should address prior findings of the Tahoe Keys Property Owners Association (TKPOA), which operates public water system wells for the Tahoe Keys waterfront community. In 2020, TKPOA representatives determined: High concentrations of PCE [were] detected at CPT-G06. Groundwater contamination appears to be discontinuous with [the] Regional Plume and could be associated with other sources (e.g. Tahoe One-Hour Cleaner, Ed's Autobody, CSK Auto).[77] The Regional Board should revise the Proposed Order and accompanying Staff Report to align its conclusions with these previous findings. If it does not do so, it should at a minimum explain how contamination from off-Site sources identified by the Regional Board, its contractors, and stakeholders can now be considered an uninterrupted plume originating from the LTLW.	We disagree. See Response to Comment Nos. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) and 27 (naming and identification of other dischargers). The available data does not indicate any separation between the Site, the regional PCE plume, and affected receptors. CPT-G06 is located within the range of historical groundwater flow directions reported at, and downgradient of, the Site and is therefore located within the expected area that could be impacted by to the discharge of PCE from the Site. PCE concentrations in groundwater extend without interruption from the regional PCE plume in the South Y Area to CPT-G06 (e.g., Transect F). Following 2017 CAO issuance, investigations conducted (1) by the Dischargers between 2017 and 2020 and (2) by AECOM in 2019 and 2020 (SCAP Regional PCE Plume Investigation) provided the discrete depth groundwater quality data to evaluate if there was a "link" between the PCE contamination identified in groundwater at the Site, the regional PCE plume, and the affected receptors as directed by the Executive Officer. The discrete depth sampling conducted along transect F show continuous PCE concentrations above the MCL extending to CPT-G06 (i.e., the Site is contributing mass to the regional PCE plume and that the Site is irrefutably "linked" to the regional PCE plume and affected receptors.) In the *Regional Plume Characterization Summary Report: South "Y" PCE Plume 2019-2020 Field Season* report, AECOM (1) observed that *"there may be an eastern lobe of the 5.0 µg/L isocontour near the residential area east of the Tahoe Valley Elementary School (Figure 5). However, the sparse lateral coverage of investigation data (i.e., PCE in groundwater) in this area has been identified as a data gap*" and (2) recommended conducting "*additional groundwater investigations in the vicinity of the northeast portion of the regional PCE plume to identify potential source(s) and refine the estimate of the lateral and vertical extents of PCE contamination in this portion of the regional PCE plume.".* Lahontan Water Board staff note that the available data indicates that additional source(s) of PCE may be contributing PCE mass (i.e., commingling) to the regional PCE plume via the "eastern lobe". However, the regional PCE plume, comprising PCE from the Site and potentially other, yet to be identified sources, is impacting TKWC#1. The identification of other potential source(s) that may be

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					creating the “eastern lobe” before commingling with the regional PCE plume does not relieve the Dischargers of their responsibility to investigate and clean up and abate the threat to water quality the regional PCE plume poses to TKWC #1.
36	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	16	The Regional Board relies on Figures 8 through 10 in the Proposed Order to establish the extent of groundwater contamination that must be addressed. These figures are depictions of the so-called South Y PCE Plume in plan and cross-section views that AECOM generated by kriging,[78] which is a geostatistical data interpolation technique. While three-dimensional computer-generated graphical displays of subsurface data are an important data visualization tool, they should not be mistaken for a CSM.[79] The exact process used to generate the PCE concentration contours presented on Figure 8 of the Proposed Order is unclear. AECOM states on page 23 of its 2022 Regional Plume Characterization Summary Report that Earth Volumetric Studio™ (EVS) software was used to produce the contours shown on the plan map incorporated as Figure 8 in the Proposed Order. However, Note 2 on Figure 8 states “PCE Plume estimation initially provided as EVS output and revised as appropriate using professional judgment.” The Regional Board should explain where, to what magnitude, and why the EVS kriging model results were altered.	Comment Noted. See Response to Comment No. 31 (Lahontan Water Board staff did not develop and present a CSM; that is one of the requirements of the Order). AECOM developed a data visualization tool following SCAP Regional PCE Plume Investigation activities to facilitate the understanding of the estimated lateral and vertical extents of PCE contamination in the South Y Area. Lahontan Water Board staff acknowledge that variations in the estimated regional PCE plume geometry and concentration distributions are expected when 1) data is interpreted by investigators utilizing different professional judgment, and 2) data is presented using different data contouring software and/or different modeling software. Lahontan Water Board staff reviewed AECOM’s EVS data visualization tool and compared it with numerous data points, ultimately concluding that the cited figures present a reasonable statistical estimate and depiction of the regional PCE plume utilizing recent (post 2017 CAO; 2017-2020) groundwater data collected by both the Dischargers and AECOM. Even allowing that variations may be presented by different investigators, Lahontan Water Board staff expect, based upon their expertise and independent review of the data considered by AECOM, that all visualizations of the estimated regional PCE plume geometry and concentration distributions will highlight two key conclusions; 1) PCE contamination above the PCE MCL of 5 µg/L extends without interruption from the Site to the regional PCE plume in the South Y Area as documented in the Dischargers 2018 off-site investigations (i.e. PCE contamination from the Site is contributing PCE mass to the regional PCE plume and is irrefutably “linked” to the regional PCE plume in the South Y area), and 2) contamination in the regional PCE plume extends, uninterrupted, from the South Y Area to various receptors as documented by the SCAP Regional PCE Plume Investigation and domestic and municipal water supply well sampling results (i.e. PCE contamination extends from the South Y area to various receptors where PCE is detected in or threatens multiple domestic and municipal water supply wells; PCE contamination from the regional PCE plume in the South Y Area is irrefutably “linked” to various receptors as far downgradient as the Tahoe Keys area). See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
37	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry	16	Moreover, AECOM notes on page 23 of its 2022 Regional Plume Characterization Summary Report that in developing the PCE concentration contours — upon which the Regional Board relies in the Proposed Order — certain data collected before 2018 were eliminated in “the desire to represent current conditions and accounting for	Comment Noted. AECOM utilized the available data collected by the Dischargers and others following 2017 CAO issuance to represent a current snapshot of the regional PCE plume. In cases where time series data were available (e.g., multiple data points from a single monitoring or

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38	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	17	Based on its description of the Regional PCE Contamination, it appears that the Regional Board assumes that any detection of PCE at any depth at any location north, northeast, or northwest of the LTLW means a single plume originates from the LTLW and extends to those northerly detections. That simplistic assumption is erroneous.	We disagree. See Response to Comment No. 22 (data and evidence supporting the conclusion that the regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
39	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	17	Differing flow directions that influence PCE migration were not considered by AECOM in its generation of groundwater PCE concentration contours. The Department of Toxic Substances Control (DTSC) states a more complicated hydrogeological setting with multiple aquifers and confining layers will demand a more detailed CSM,[84] which necessitates contaminant concentration contour maps for each aquifer or hydrostratigraphic unit. The Regional Board's reliance on data interpretation that does not adhere to DTSC guidance is particularly egregious because the Proposed Order[85]directs Seven Springs/Fox to prepare their CSM in accordance with that guidance.	We disagree. See Response to Comment No. 31 (Lahontan Water Board staff did not develop and present a CSM; that is one of the requirements of the Order). See also Response to Comment No. 36 (regarding the use of AECOM's visualization tool and in particular the two key conclusions). AECOM's data visualization tool was intended to facilitate the understanding of the estimated lateral and vertical extents of PCE contamination in the South Y Area. The contour maps provide an illustration of the current PCE concentration at a given location and do not consider groundwater flow direction. AECOM's visualization tool allows for depth discrete "slices" of PCE concentrations to be generated for "illustrative" purposes Lahontan Water Board staff have consistently identified the range of historical groundwater flow directions, downward vertical gradients, water supply well pumping, and lithology as factors to consider in developing the Dischargers' CSM. The Dischargers' CSM is flawed and is not supported by the available data. The utilization of a flawed CSM has resulted in the development of flawed recommendations and conclusions regarding the need to investigate and cleanup contamination originating from the Site. See Response to Comment No. 6 (CSM needs updating and incomplete delineation).
40	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	18	Groundwater PCE concentration differences in the shallow and middle zones distinguish impacts at the LTLW from the Regional PCE Contamination.[86] Groundwater PCE concentrations in the shallow and middle zones beneath Lake Tahoe Boulevard *before* initiating remediation at the LTLW were less than those presently measured in groundwater samples collected north of the street. As shown on Figures 14 through 17 of the Regional Board Staff Report, the highest	We disagree. Available information does not indicate any separation between the Site and the regional PCE plume and that there is a concentration gradient from the Site to the regional PCE plume (i.e., highest to lowest). PCE concentrations up to 5,150 µg/L were reported in shallow zone groundwater monitoring well LW-MW-1S, which is located in the Site's

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				PCE concentration in the shallow zone below Lake Tahoe Boulevard before starting SVE/GASS was 85.3 µg/L at LW-MW-6S in 2008 compared with Regional PCE Contamination in the shallow zone of 596 µg/L at LTLW-GW-11 in 2018.[87] Likewise, the highest PCE concentration in the middle zone beneath Lake Tahoe Boulevard was 230 µg/L at GW-7 in 2004 compared with Regional PCE Contamination in the middle zone of 503 µg/L at LTLW-GW-9, 1,680 µg/L at LTLW-GW-11, 490 µg/L at OS-2M, 570 µg/L at CPT-E01, 1,040 µg/L at LTLW-FIF, and 718 µg/L at LTLW-J4 between 2017 and 2022.[88] These higher PCE concentrations (both pre-remediation and post-initiation of remediation) distinguish the Regional PCE Contamination from impacts at the LTLW.	northern parking lot (solvent delivery parking area) adjacent to the Site's western stormwater conveyance drop inlet prior to remedial implementation, and have ranged between 5,380 µg/L and 1.5 µg/L during AS/SVE remediation system operation. The PCE concentrations reported in LW-MW-1S are the highest concentrations reported within the entire regional PCE plume and indicate a concentration gradient from the Site does exist. See also Response to Comment Nos. 27 (identification and naming of other dischargers) and 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors)].) Additionally, as described in *CAO Staff Report Section 8.1 Plume Separation,* the groundwater investigation results from the Dischargers' 2018 Phase 1 Site investigation (i.e., first transect of Dischargers step out investigation conducted following 2017 CAO issuance) shows that even after 9 years of on-Site AS/SVE remediation system operation and the removal of over 957 pounds of VOCs (i.e., PCE) from the vadose and shallow zone groundwater cleanup area, all downgradient groundwater sample locations in Lake Tahoe Boulevard contain PCE at concentrations above the MCL. This finding is significant because it should be expected the on-Site AS/SVE remediation system would reduce PCE groundwater concentrations which may have "erased" the link between the PCE contamination originating from the Site and the regional PCE plume, however, the investigation results confirm the Site is linked to the regional PCE plume, refuting EKI's "plume separation" theory. Lahontan Water Board staff acknowledge the uncertainty and complexities related to the local concentration distribution and plume geometry in the vicinity of the Site, Lake Tahoe Boulevard, and Tucker Avenue and that potential contaminant transport along preferential pathways (i.e., City of South Lake Tahoe's stormwater conveyance system/Tucker Basin) and/or remaining source areas may provide potential explanation for the concentration distribution and plume geometry reported. Regardless, the uncertainty and complexities do not negate the available data, which clearly shows an irrefutable link between the Site, the regional PCE plume, and affected receptors. See also Response to Comment No. 6 (incomplete delineation) and 22 (the regional PCE plume begins at the Site and continues, uninterrupted, to various receptors)
41	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	19	Lower groundwater PCE concentrations upgradient cannot convert into higher PCE concentrations downgradient and cross-gradient. The most plausible explanation for higher PCE concentrations in the downgradient and cross-gradient directions of groundwater flow from the LTLW is PCE mass has been released to the subsurface at sites other than LTLW.	We disagree. This comment is vague and seems to suggest there are discharges of PCE upgradient of LTLW. There are not. See Response to Comment No. 22 (no upgradient sources; regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). It also ignores that the highest PCE concentrations in the regional PCE plume have been reported at the Site. See Response to Comment No. 40 (concentration gradient does exist; highest PCE concentrations in the regional PCE plume have been reported at the Site).
42	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry	19	The Regional Board's assumption that every downgradient PCE detection originates from the LTLW is irrational because it ignores the potential for intervening sources. One way to determine if an intervening source exists is to look at the "concentration gradient." A concentration gradient occurs when the amount of contaminant dissolved in groundwater is higher at one location than another. As	We disagree. See Response to Comment Nos. 40 (concentration gradient does exist; highest PCE concentrations in the regional PCE plume have been reported at the Site) and 22 (regional PCE plume begins at Site, and continues, uninterrupted, to various receptors).

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43	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	20	The Regional Board also recognizes back diffusion of PCE from low permeability zones is an important process that needs to be understood.[99] Due to processes such as back diffusion, contaminant concentrations are highest beneath their source at any site where a chemical release has taken place.[100] The absence of a decreasing PCE concentration gradient in groundwater emanating from the LTLW means PCE migration in groundwater from the LTLW is not the origin of the Regional PCE Contamination and supports the conclusion that other sources have released PCE to groundwater within the Tahoe Valley South Subbasin.[101]	We disagree. See Response to Comment No. 40 (concentration gradient does exist; highest PCE concentrations in the regional PCE plume have been reported at the Site). Back diffusion, as described in the comment, supports the conclusion that the Site is contributing mass to the regional PCE plume. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
44	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	21	Although the Regional Board realizes the importance of back diffusion, it does not address the implications of the process nor attempt to explain how contamination in groundwater migrating from the LTLW could have resulted in PCE concentrations at the Big O Tires and Norma's Cleaners sites that are higher than those below Lake Tahoe Boulevard adjacent to the LTLW. Unable to proffer a scientific rationale supporting the finding that groundwater with significant PCE concentrations flowed off the LTLW, the Regional Board hypothesizes (1) the existence of PCE in groundwater beneath Lake Tahoe Boulevard at concentrations near the MCL of 5 µg/L is proof that the LTLW created the Regional PCE Contamination, and (2) PCE from LTLW traveled along a storm drain pipeline to Tucker Basin and subsequently leached to groundwater and formed the Regional PCE Contamination. The first hypothesis is based on the Regional Board's belief that the only way the LTLW is not responsible for the Regional PCE Contamination is if no PCE whatsoever were detected in groundwater samples collected along Lake Tahoe Boulevard.[102] This theory is undone by the Regional Board's own recognition that "plumes composed of dissolved solvent compounds migrate with groundwater flow and decrease in concentration with distance from the source."[103] The second hypothesis, that PCE was transported through the vadose or unsaturated zone to Tucker Basin is uncorroborated speculation, as discussed in Section 2.6.	We disagree. See Response to Comment No. 43 (back diffusion), 40 (concentration gradient does exist; acknowledgement of complexities and uncertainty around Lake Tahoe Boulevard), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 16 (discharge to stormwater conveyance system/Tucker Basin; incomplete preferential pathway investigation), 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners) and 27 (identification and naming of other dischargers). The Discharger's preferential pathway investigations remain incomplete and do not adequately evaluate the potential threat to human health from waste discharged to the environment via preferential pathways.
45	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	21, 22	The multiple distinct areas of higher PCE concentrations of 100 µg/L or more in groundwater or "hot spots" shown on Figure 8 (i.e., closed yellow- and red-shaded areas) also indicate contamination caused by releases at off-Site properties. For example, at borehole SONIC10, located along 11th Street near Eloise Avenue, PCE was measured at a concentration of 550 µg/L at an elevation of 6144 feet above mean sea level (msl).[106] However, no PCE has been detected in groundwater samples collected at this elevation in upgradient boreholes SONIC01 and SONIC22 or below 6210 feet msl at the LTLW itself. The highest PCE concentration in groundwater samples	Comment Noted. Lahontan Water Board staff acknowledge the data gap associated with PCE concentrations in groundwater upgradient of Sonic 10 (see Response to Comment No. 46 [data gaps upgradient of Sonic 10;evolving understanding based on new data collection]), the potential for additional sources contributing to the regional PCE plume to exist in the area, and the complexities associated with interpreting PCE concentration distribution within the regional PCE plume relative to potential sources.. The "hot spots" detected historically, and more recently during the SCAP PCE Plume Investigation, have been reported within "middle zone" depths at locations where lower PCE

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				collected at elevations of 6140 feet msl or less from boreholes placed between the LTLW and SONIC10 was 44 µg/L in SONIC03.	concentrations were reported in shallow groundwater above the "hot spots"; the "hot spots" are lower in concentration than the maximum PCE concentrations reported at the Site. During the 2019 and 2020 regional PCE plume characterization, PCE was detected in only four (4) out of a total of 95 shallow groundwater samples (collected above approximately 30 feet bgs) at concentrations exceeding the MCL within the estimated lateral extent of the regional PCE plume; these four samples were all collected in areas near the City of South Lake Tahoe's stormwater conveyance system. The available data indicates the PCE contamination reported in the various "hot spots" could either be potentially attributed to (1) the Site based on the concentration gradient (i.e., the highest PCE concentrations have been reported within shallow groundwater at the Site) and range of reported groundwater flow directions which indicate that the "hot spots" are located within the expected impacted area created by discharges from the Site, or (2) additional potential sources. Regardless, available data does not indicate separation between the Site, the regional PCE plume, and receptors. Lahontan Water Board staff will continue to evaluate and identify other potential sources of PCE contributing to the regional PCE plume as new information, staffing and funding allow. See Response to Comment Nos. 27 (identification and naming of other dischargers), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), and 40 (concentration gradient does exist). See also Master Response to Legal Comments.
46	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	22	The relative lack of PCE in the upgradient direction of SONIC10 is shown on Figure 5-5 in EKI's Investigation Summary Report, dated 1 October 2020. Figure 5-5 of that report illustrates that PCE at 550 µg/L in SONIC10 likely originates from a release in the vicinity of a 7-Eleven store along Emerald Bay Road near 10th Street. In 2016, the Regional Board also believed the source for the western portion of the Regional PCE Contamination may exist in this area. The Regional Board "strongly" believed that a small engine repair shop[107] near the 7-Eleven store was "responsible for the contamination and shutdown of Lukins #2 and #5 public water system (PWS) wells and Rockwater Apartments well (small community water system well) on Emerald Bay Road."[108] The Regional Board stated that a "suspected-source area investigation near the 7-11 Store property on Emerald Bay Road" should be performed.[109] The investigation advocated by the Regional Board has not been accomplished to date.	We disagree. See Response to Comment No. 9 (prior statements based upon incomplete data set), 27 (identification and naming of other dischargers), and 45 ("hot spots" within the regional PCE plume). Lahontan Water Board staff acknowledge the data gap associated with PCE concentrations in groundwater upgradient of Sonic 10 and the potential for additional sources contributing to the regional PCE plume to exist in the area. However, in 2019, the Discharger's consultants advanced three borings in the general vicinity of the Rockwater Apartments to "screen for VOCs in groundwater that may originate from the former small engine repair site." PCE was not reported in the three borings within the top two depths intervals investigated (i.e., 25-29 and 41-45 feet bgs); PCE was reported between 69-73 feet bgs at concentrations ranging from 22 to 99 µg/L. The investigation results did not identify any "hot spots" in shallow groundwater. Lahontan Water Board staff's understanding of the lateral and vertical extent of PCE contamination for soil, soil gas, and groundwater media, will continue to evolve as additional data are collected and evaluated.
47	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	22	AECOM's data interpretation presented on Figure 8 in the Proposed Order adds to the false impression of an uninterrupted plume. Although not contained in the Proposed Order, Section D-D (Figure 11) in AECOM's Regional Plume Characterization Summary Report illustrates the shortcoming of Figure 8 that is included. PCE was measured at 320 µg/L in a groundwater sample obtained at an elevation of 6168 feet msl (71 feet bgs) from SONIC15, which is located at Colorado Court east of Tahoe Keys Boulevard. As shown on Section D-D, AECOM joins this contamination at SONIC15 to PCE measured at 5.4 µg/L west of Tahoe Keys Boulevard at 6147 feet msl in borehole SONIC17. Boreholes SONIC15 and SONIC 17 are	Comment Noted. Lahontan Water Board staff acknowledge that PCE contamination is unlikely to migrate from Sonic 17 to Sonic 15 given the inferred cross gradient locations. However, both Sonic 15 and Sonic 17 are located within the range of historical groundwater flow directions reported in the Site vicinity and in the distal portion of the regional PCE plume, and are therefore located within areas that could be impacted by the discharge of PCE from the Site. See Response to Comment No. 36 (use of AECOM's visualization tool and in particular the two key conclusions).

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				approximately 1,500 feet apart and in the probable cross-gradient direction of groundwater flow from each other. Consequently, PCE in groundwater is unlikely to migrate from SONIC17 to SONIC15.	
48	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	22, 23	Figures 3 and 54 in the Regional Board Staff Report depicts the separation in plumes consistent with TKPOA's recognition in 2020 that groundwater PCE contamination east of Tahoe Keys Boulevard was due to different sources than groundwater PCE contamination west of this street. The Regional Board's own conjecture of a plume emanating from the LTLW does not expand east of the former Norma's Cleaners site,[110] which is situated roughly one-half mile west of Tahoe Keys Boulevard. Nonetheless, the Regional Board accepts AECOM's data interpretation despite its implausibility and contradiction with TKPOA's determination that PCE detected at CPT-G06, which is in the vicinity of SONIC15, is associated with sources east of Tahoe Keys Boulevard.	Comment Noted. See Response to Comment No. 6 (no separation between Site, regional PCE plume, and affected receptors). The Dischargers have not identified any source areas contributing mass to the regional PCE plume east of Tahoe Keys Boulevard utilizing consistent source identification criteria (e.g., criteria described in the EKI's Amended Groundwater Investigation Work Plan). Lahontan Water Board staff acknowledge that there may be additional PCE sources east of Tahoe Keys Boulevard that are contributing mass to the regional PCE plume. However, Lahontan Water Board staff notes that the receptors located in the eastern portion of the distal regional PCE plume are being threatened/impacted by PCE mass which extends, uninterrupted, from the South Y area (e.g., the Site) to the various receptors. Identifying other chlorinated hydrocarbon sources does not release the Dischargers from their responsibility to fully define the lateral and vertical extent of contamination migrating from the Site, nor does identifying such sources mean that investigation goals have been met and LTLW's investigation can be considered complete. See Response to Comment No. 19 (concerns with investigation strategy). See also Response to Comment Nos. 35 (data supporting the Site's connection to contamination in CPT-G06), 36 (the use of the AECOM visualization tool and in particular the two key conclusions), 9 (prior conclusions based upon incomplete dataset) and. 27 (identification and naming of other dischargers).
49	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	23	In a similar fashion, AECOM links contamination in the middle zone at the former Big O Tires facility and former Norma's Cleaners site by extrapolating PCE concentration contours in a direction counter to the prevailing groundwater flow direction in this hydrostratigraphic unit.[111] PCE was measured at 1,680 µg/L at 6233 feet msl in borehole LTLW-GW-11, which is near the former Big O Tires facility.[112] Although groundwater in the middle zone has been demonstrated to flow to the northwest,[113] AECOM extrapolated the 100 to 500 µg/L PCE concentration contour approximately 1,200 feet northeast to LTLW-J4, which is next to the former Norma's Cleaners site.[114] PCE was measured at 718 µg/L at 6239 feet msl in borehole LTLW-J4. In linking these detections, AECOM ignored the PCE concentration of 10.9 µg/L at 6232 feet msl in borehole LTLW-GW-12, which is about 100 feet northeast of LTLW-GW-11, and in the same direction that AECOM mapped the 100 to 500 µg/L PCE concentration contour in the middle zone.[115] The substantially lower PCE concentration in nearby LTLW-GW-12 indicates elevated PCE concentrations in groundwater did not move in the direction mapped by AECOM. Figure 53 in the Regional Board Staff Report depicts the separation of the 100 to 500 µg/L PCE concentration contour in the middle zone along Emerald Bay Road and the presence of another distinct area of higher groundwater PCE contamination near businesses along Ruth Avenue. As discussed in Section 3, these distinct areas of higher groundwater contamination are indicative of PCE discharges at off-Site properties.	Comment Noted. Lahontan Water Board staff acknowledge the data gaps associated with Big O Tires and Former Norma's Cleaners and note that the available data do not indicate any separation between the Site, the regional PCE plume, and affected receptors, including the data cited in the comment, and that preferential pathway investigations remain incomplete. See Response to Comment Nos. 6 (incomplete delineation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 16 (incomplete preferential pathway investigation; discharge to stormwater conveyance system/Tucker Basin). Lahontan Water Board staff also note the City of South Lake Tahoe's stormwater conveyance system may have an influence on regional PCE plume geometry and that groundwater flow directions reported at the Site, Big O Tires, and Former Norma's Cleaners have ranged substantially, including to the northeast. See also Response to Comment No. 36 (use of the AECOM visualization tool and in particular the two key conclusions), 45 ("hot spots" within the regional PCE plume), 40 (concentration gradient; influence of stormwater conveyance system on regional PCE plume geometry) and 27 (identification and naming of other dischargers).
50	PES/EKI	September 19, 2022 Subject:	23	AECOM also is incorrect that PCE in groundwater to a depth of 25 feet bgs within the shallow zone forms an uninterrupted plume that extends	We disagree. The Discharger's preferential pathway investigations remain incomplete

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51	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	24	U.S. EPA advises that a CSM is developed using available data and illustrates the relationship between contaminants, transport media, and receptors.[118] Because the Proposed Order is predicated on a CSM that does not account for locations of off-Site sources, PCE amounts these sources are contributing to the subsurface, and how groundwater flow influences PCE mass transport and distribution within the Tahoe Valley South Subbasin, the Proposed Order does not provide a valid basis for either identifying responsible parties or evaluating the need for future cleanup and abatement measures.	We agree. The existing CSM is incomplete and inadequate. See Response to Comment No. 6 (CSM needs updating), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) and 27 (identification and naming of other dischargers).
52	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	24	The Regional Board's assertion that the Proposed Order is necessary because contamination likely migrated from the LTLW before the SVE/GASS was installed is unsupported by the record. The Regional Board asserts: Over 982 pounds of VOCs (i.e., PCE) have been removed from the Site since AS/SVE system initiation. The design of the AS/SVE system and mass removal over time clearly shows on-Site mass was available in sufficient quantities and at depths to provide the mass loading which is consistent with the regional PCE plume and not a limited localized plume restricted to the Site and near vicinity.[119] To state the obvious, contamination found beneath LTLW is PCE that has not migrated off-Site. If anything, the fact that this quantity of contamination still was present at the Site when cleanup began, 30 years after the dry-cleaning unit ceased operating, suggests that contamination was trapped at LTLW, and significant migration did not occur historically.[120]	We disagree. The suggestion that contamination, located both above and below the water table, was "trapped" and did not migrate off-Site for 30 years in the Tahoe Valley South Subbasin, where precipitation and snowfall average ~52 inches and 408 inches per year, respectively, and high groundwater flow velocities exist, lacks any evidentiary support. The available data, including calculations provided by the Dischargers' own consultants which estimate potential PCE migration distance in shallow groundwater (See Response to Comment No. 57 (Discharger's own contaminant migration calculations) and *CAO Staff Report Section 8.2 Discharger's Data Interpretation – Mass Balance*), directly contradicts and refutes this comment. See also Response to Comment Nos. 8 (incomplete remediation) and 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
53	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	25	The Regional Board's assertion regarding pre-remedial migration is further suspect because it conflicts with the Regional Board's previously held positions and existing data. In 2004, almost 20 years ago, the Regional Board considered whether contamination from LTLW had migrated to the immediately downgradient facility, the (now former) Big O Tires property, where PCE also was detected.[121] Noting that contamination at LTLW was confined to shallow groundwater	We disagree. Groundwater data collected during the SCAP investigation in 2019 and 2020 provide a reconnaissance level snapshot of the lateral and vertical extent of the regional PCE plume and indication of the extent of pre-remedial migration that occurred. See Response to Comments Nos. 9 (prior conclusions based upon incomplete data set), 6 (incomplete delineation), 8 (incomplete remediation), 22 (regional PCE

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				while off-Site contamination was found 15 to 20 feet deeper in middle zone groundwater, Regional Board staff "agree[d]" with the conclusion that "the source of contamination" is "not from the laundromat."[122] Figures 14 and 15 of the Staff Report depict pre-remediation groundwater conditions in the shallow zone and middle zone, respectively. As shown on these figures, PCE concentrations are lower in samples collected within Lake Tahoe Boulevard than those detected on the Big O Tires site. Four years later, in 2008, the Regional Board again found that "data from investigations at other PCE sites strongly suggest" that contamination at the Site "is not a free product source that migrated to the Big O Tire site."[123] In 2009, the Regional Board approved the LTLW remedial action work plan, which concluded that contamination had not migrated off-Site.[124] The Proposed Order does not explain how or why the Regional Board has now reached a conclusion incompatible with its earlier positions. Certainly, no new information regarding pre-remedial conditions has become available.	plume begins at the Site and continues, uninterrupted, to various receptors) and 52 (Discharger's own contaminant migration calculations).
54	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	25, 26	According to the Regional Board, PCE is continuing to migrate from the LTLW because "the remediation system was only designed to address on-Site vadose zone (unsaturated zone above groundwater) soil and shallow groundwater."[125] In 2005, the Regional Board concluded the discharge on the LTLW resulted in "shallow residual contamination in soil instead of sinking free-product in the aquifer" and PCE in groundwater is "near the water table since PCE concentrations decrease with distance from the site."[126] The Regional Board attributed PCE within the middle zone beneath Lake Tahoe Boulevard to the release at the former Big O Tires facility and possibly other off-Site sources.[127] The SVE/GASS treats only soil and shallow groundwater because the remedial action plan for the Regional Board determined these were the media impacted primarily by the PCE discharge at the Site.[128] The remedial action plan states the purpose of the SVE/GASS is to "permanently prevent or minimize the release of hazardous substances or contaminants from the site such that they do not migrate or cause imminent and substantial endangerment to present or future public health and welfare, or the environment."[129] On 2 August 2013, the Regional Board issued Investigative Order R6T-2013-0064 approving SVE/GASS as the remedy for the LTLW.[130] In the 2017 CAO, the Regional Board acknowledged that these remedial measures were "implemented . . . in compliance with previous Water Board Directives."[131]	Comment Noted. See Response to Comment No. 53 (contaminant migration prior to remediation), 6 (incomplete delineation) and 8 (incomplete remediation) The Order appropriately identifies that off-Site contaminant migration is still occurring and additional investigation and remediation actions are needed to ensure protection of human health and the environment.
55	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	26	In May 2017, groundwater samples were collected from eight SVE wells (VE-2, VE-3, VE-4, VE-5, VE-10, VE-11, VE-12, and VE-13) and nine air sparge wells (AS-6, AS-7, AS-8, AS-13, AS-14, AS-19, AS-20, AS-21, and AS-25). PCE was not measured above the laboratory analytical method reporting limit of 0.5 µg/L in 12 of the 17 samples.[132] PCE detected in the other five samples was less than the MCL of 5 µg/L. The SVE and air sparge wells were sampled at the request of the Regional Board to "better define [the] extent of contamination" in groundwater at the Site.[133] The data for these wells confirm that the zones of influence (ZOIs) exerted by the air sparge wells cover the shallow zone that the Regional Board directed to be remediated and refute that the notion that the SVE/GASS was somehow inadequate.[134]	We disagree. See Response to Comment No. 8 (incomplete remediation). Lahontan Water Board staff acknowledge the intended design, ZOIs exerted, and benefits of operating the existing AS/SVE system. However, the operation of the AS/SVE system has not achieved remedial objectives and does not clean up the entire extent of discharge originating from the Site. For example, all of the remediation wells referenced in the comment are located within the "vadose and shallow groundwater source area" and represent the area previously identified for cleanup, but these wells are not appropriate to evaluate the extent of contaminant migration that occurred in the past and do not reflect the extent of contaminant migration that is occurring outside of the cleanup area during remedial system operation. Quarterly groundwater

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					sampling of on- and off-Site monitoring wells (OS well pairs) at locations immediately down-gradient of the Site (i.e., the vadose and shallow groundwater cleanup area) has consistently shown PCE concentrations above MCLs which indicates PCE contamination continues to migrate off-Site beyond the limits of AS/SVE system's horizontal and vertical zone of influence.
56	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	27	The Regional Board contends without justification that PCE in groundwater below Lake Tahoe Boulevard should have declined to concentrations less than the MCL of 5 µg/L by now and "'erased' the link between the PCE contamination originating from the Site and the regional PCE plume."[138] PCE concentrations greater than the MCL in groundwater beneath Lake Tahoe Boulevard are not surprising. Back diffusion from low permeability layers in granular porous media can give rise to low contaminant concentrations for decades after complete removal of the source.[139]	Comment Noted. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 43 (back diffusion), and 40 (no separation between the Site and the regional PCE plume). Lahontan Water Board staff acknowledge the challenges back diffusion from low permeability layers in granular porous media can play in meeting remedial objectives. However, the detections of PCE above the MCL, whether due to recent off-Site migration and/or back diffusion of PCE that migrated off-Site in the past, support Lahontan Water Board staff's conclusions that 1) PCE has migrated-off-Site, 2) PCE is detected above the MCL without interruption between the Site and the regional PCE plume, and 3) the Site is irrefutably linked to the regional PCE plume. The remedial actions implemented to date have not been successful in achieving remedial objectives. Additional on and off-Site remedial actions are necessary to cleanup soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater. See Response to Comment No. 8 (incomplete remediation).
57	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	27, 28	Formation of a groundwater contaminant plume is governed by the mass balance between contaminant loading and attenuation mechanisms. The Interstate Technology & Regulatory Council (ITRC)[140] explains, "[a]s contaminant (or mass) loading occurs from a source area into the aquifer, the mechanisms of dispersion, convection, and advection cause the contaminants to spread within the groundwater and aquifer materials."[141] The plume will expand if the rate of contaminant loading is greater than the rate of all attenuation mechanisms. Conversely, the plume will remain stable or shrink if the loading rate is equal to, or less than the attenuation rate, respectively.[142] Thus, the lack of a significant off-Site plume originating from LTLW is explained by a PCE loading rate to groundwater that is less than the PCE attenuation rate in groundwater.	We disagree. Available information indicates sufficient contaminant mass (e.g., more than 1,000 pounds of PCE) is present at the Site for contaminant loading and a significant off-Site plume originating from the Site is present and consistent with calculations provided by the Discharger for potential contaminant migration. Lahontan Water Board staff do not agree that the mass balance between contaminant loading and attenuation mechanisms at the Site has not resulted in off-Site migration. On the contrary, the evidence supports the conclusion that there is no separation between the Site, the regional PCE plume, and affected receptors. See Response to Comment No. 22. (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). See *CAO Staff Report Section 8.2 Dischargers' Data Interpretation Mass Balance* for six separate discussion topics regarding mass balance. As described in topic #3, any dissolved phase (i.e., groundwater) contaminant transport would be controlled by natural and induced (i.e., supply well pumping) groundwater flow directions and gradients, hydraulic conductivities, and the effective porosity of the subsurface relative to natural attenuation processes (i.e., retardation factor). EKI provided an estimate of PCE velocity and migration distance in their "Calculation of Potential PCE Migration in Shallow Zone Between February 2013 through August 2013" document. The assumptions used in the calculation were derived from aquifer testing results at nearby properties, on-Site quarterly groundwater monitoring, and literature values. While Lahontan Water Board staff do not necessarily agree with all assumptions used in the calculation, the calculation itself provides a general estimate of natural attenuation processes and potential PCE

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					migration over time. EKI estimated a PCE velocity of 0.2 feet per day and low fractions of organic carbon materials (i.e., conditions supporting little natural attenuation) within the aquifer. EKI's calculation is somewhat consistent (i.e., approximately 3 times slower) with the District's estimated "10-year Time of Travel" shown on a figure illustrating source area protection zones for supply wells in their 2014 Groundwater Management Plan for the Tahoe Valley South Basin (Figure 48). The District's and EKI's estimates are borne out by the evidence produced during the SCAP Regional PCE Plume Investigation and are inconsistent with the Dischargers' current CSM. For example, using EKI's estimated PCE velocity, and considering the forty years of potential discharge and unabated migration, this equates to a PCE migration distance of approximately 3,000 feet. Notwithstanding EKI's calculation, which includes consideration of natural attenuation processes, the CSM currently advanced by The Dischargers indicates that no more than 100 feet of potential migration of PCE contamination occurred. Assumptions within the calculation are based on groundwater gradients and material properties and are not expected to change significantly (i.e., groundwater gradients, hydraulic conductivity, retardation factor, and effective porosity). The Dischargers' consultants have not updated their retardation factor or provided explanation to account for the attenuation processes that would be necessary to limit the migration of dissolved phase contamination (i.e., contamination dissolved in groundwater) to locations within 100 feet of the Site for over forty years. Lahontan Water Board staff note that the Dischargers have not submitted any physical evidence and/or groundwater quality data that supports this migration calculation. Instead, currently available data shows that the Site is contributing mass to the regional PCE plume which extends, uninterrupted, to various receptors. EKI's own statements included in the April 2020 ISR and the October 2020 ISR also contradict the "plume separation" theory. EKI states, "…. *The PCE released to the subsurface at the LTLW is not the primary source of PCE detected in off-Site groundwater within the South Y area*" (emphasis added). Lahontan Water Board staff have identified this statement as EKI's acknowledgement that the PCE contamination identified at the Site is contributing an unknown portion of PCE mass to the regional PCE plume. Further, EKI's most recent estimate of the lateral extent of PCE contamination in the shallow, middle, and deeper zones originating from the Site, as presented in EKI's iso-concentration maps in the October 2020 ISR refutes EKI's statement regarding a lack of an off-Site plume due to a PCE loading rate to groundwater that is less than the PCE attenuation rate in groundwater.
58	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	28	The Regional Board concedes PCE dissolved in groundwater is subject to attenuation processes.[144] The Regional Board's rebuttal[145] to these phenomena is to disregard them and claim PCE concentrations less than 100 µg/L and frequently closer to the MCL of 5 µg/L in groundwater samples collected beneath Lake Tahoe Boulevard are proof that LTLW is responsible for PCE detected as high as 4,700 µg/L in groundwater beneath the former Big O Tires facility[146] and greater than 500 µg/L in groundwater elsewhere within the Tahoe Valley South Subbasin.[147] In doing so, the Regional Board	We disagree. The comment suggests there are potentially other sources of PCE discharges in the Basin but does not refute the fact that the Site is the most upgradient source contributing mass to the regional PCE plume that extends, uninterrupted, from the Site to various receptors. See Response to Comments Nos. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other dischargers), 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners), 45

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				ignores the likely explanation for these detections, which is that former Big O Tires and Norma's Cleaners sites discharged significant quantities of PCE to groundwater[148] as well as other off-Site sources.	("hot spots" within the regional PCE plume) and 40 (concentration gradient does exist; potential contaminant transport along preferential pathways).
59	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	28	DRI attempted to develop a numerical groundwater flow and mass transport model that simulated the evolution of Regional PCE Contamination due to a PCE release at the LTLW. DRI ignored back diffusion to simulate PCE migration from the LTLW as a detached plume (i.e., a dissolved-phase plume detached from the source location) that is a rare occurrence.[149] Had this assumption been accurate, the model should have been capable of simulating a release that matches the distinct areas of higher PCE concentrations in groundwater throughout the South Y Area as mapped by AECOM. However, when contamination is modeled as a single source, DRI obtained concentric PCE contours that decrease in concentration and expand in areal extent as groundwater flows from the assumed source. DRI's contours do not correspond to those mapped by AECOM. DRI failed because its CSM, which is the same one adopted by the Regional Board,[150] is incorrect. The Regional PCE Contamination does not originate from the LTLW.	We disagree. The DRI model was not used to support Order findings. See Response to Comments No. 6 (CSM needs updating) and 31 (Lahontan Water Board staff did not develop and present a CSM; that is one of the requirements of the Order. Lahontan Water Board staff also acknowledge the limitations of the DRI fate and transport model (e.g., 40 meter and 100 meter model layer thicknesses were used to simulate the top of the aquifer; "shallow" [~0-30' bgs] and "middle" [~30-50' bgs] zones are both located within the upper layer of the model and are not distinguished in the model) and the fact that the DRI modelers did not benefit from the data collection activities performed after 2016 to develop and calibrate the model.
60	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	29	To generate an impacted groundwater volume that approaches the dimensions of the Regional PCE Contamination mapped by AECOM, DRI had to assume a massive DNAPL release took place at the LTLW for which there is no evidence. STPUD relied upon the DRI model to conduct a feasibility study of potential remedial actions to mitigate the Regional PCE Contamination.[151] Due to the unreasonably large release assumed by DRI, STPUD claims the preferred remedial action will remove 770 to 3,300 pounds of PCE from groundwater over 20 years.[152] In contrast, Seven Springs and Fox calculated that the total mass of PCE dissolved in groundwater is on the order of only 100 to 300 pounds.[153] The groundwater PCE concentration contour maps prepared by AECOM reflect a total PCE mass of approximately 240 pounds, which is within the range estimated by Seven Springs and Fox. AECOM's mapping supports the conclusion that the PCE mass comprising the Regional PCE Contamination is too small to have originated from a single location. A much bigger release is needed for one location to be the source of a wide region of impacted groundwater. The large-impacted groundwater dimensions associated with the smaller PCE mass results from discharges at multiple sites spread across the Tahoe Valley South Subbasin to produce the Regional PCE Contamination. This manner of discharge is consistent with the distinct areas of higher PCE concentrations of 100 µg/L or more in groundwater shown on Figure 8 (i.e., closed yellow- and red-shaded areas).	Comment Noted. Available soil and groundwater data indicate DNAPL was present at the Site. The maximum PCE concentration detected in soil on-Site (532 mg/kg) was reported at a depth of 7 feet bgs which is within the range of historical groundwater elevations and is above the 170 mg/kg Site specific estimated dense non-aqueous phase liquid (DNAPL) partitioning threshold (i.e., the lowest PCE concentration in soil at which DNAPL would be expected to be found). The PCE concentrations in groundwater above 2,000 µg/L reported during quarterly monitoring are above the DNAPL groundwater partitioning threshold and indicate that DNAPL was likely present on-Site prior to, and during AS/SVE remediation system operation. See Response to Comments No. 6 (delineation incomplete and CSM needs updating), 8 (incomplete remediation; need for remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other dischargers), 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners), and 59 (addressing the DRI model, which was performed prior to the extensive SCAP Regional PCE Plume Investigation and not used to support Order findings).
61	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	29, 30	Seven Springs and Fox disagree with the Regional Board's interpretation and conclusions regarding the contribution of storm water and sanitary sewer conveyances at the LTLW to the Regional PCE Contamination. As summarized below and detailed in the April 2019 Investigation Summary Report[154], neither the Preferential Pathway Evaluation nor previous Site investigations have identified evidence that PCE as DNAPL or in dissolved form migrated off-Site along utility lines or other subsurface features that could act as preferential pathways for PCE transport. PCE concentrations in fill samples (i.e., soil matrix) surrounding the storm drain and sanitary	Comment Noted. This comment focuses on whether or not DNAPL was being transported within utility fill materials while disregarding the same information, which indicated actual discharges of PCE impacted stormwater to the stormwater conveyance system and need for additional investigation when considering all the available lines of evidence (e.g., passive soil gas, soil, and shallow groundwater. Lahontan Water Board staff have determined that the preferential pathway investigation required by the 2017 CAO is incomplete. See Response to Comment Nos. 16 (incomplete preferential pathway

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				sewer pipelines were low, ranging from non-detection at the laboratory analytical method reporting limit of 0.00127 milligrams per kilogram (mg/kg) to a maximum of 0.106 mg/kg, which is less than the LTLW soil cleanup goal of 0.37 mg/kg.[155] The fill sample data do not indicate that the storm drain and sanitary sewer systems served as preferential pathways for migration of PCE from the LTLW. Further, DNAPL partitioning calculations for PCE support the findings that DNAPL did not migrate along preferential pathways to the Tucker Basin.[156]	investigation; discharge to stormwater conveyance system/Tucker Basin; disregard of Site's potential contribution to stormwater conveyance system). In addition, Lahontan Water Board staff acknowledge that reported soil concentrations within utility backfill were below the DNAPL partitioning threshold and did not indicate "DNAPL" was being transported within the backfill rather PCE contamination below the DNAPL partitioning thresholds was reported within the backfill and was likely being transported via soil vapor and groundwater. However, the Dischargers' have stated any further evaluation of contaminant transport via the stormwater conveyance system is the sole responsibility of Big O Tires despite the fact that soil, soil gas, and groundwater data clearly confirms on-Site discharges to the Site's stormwater conveyance system (highest concentrations and masses of PCE in soil, soil gas, and groundwater have been reported near the stormwater conveyance inlet located in the western portion of the Site's parking lot and PCE concentrations in soil were reported within utility backfill) and off-Site contaminant transport via the stormwater conveyance system (PCE passive soil gas masses three orders of magnitude higher than background were reported at the discharge point into Tucker Basin). Lahontan Water Board staff also acknowledge that data gaps at the Big O Tires site related to potential discharges to the stormwater conveyance system (i.e., Tucker Basin) have not been addressed to date. The Dischargers' investigations conducted to date have not resulted in a complete delineation of the extent and magnitude of PCE contamination within and beyond Tucker Basin.
62	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	30, 31	PCE in soil at the LTLW appears localized to the suspected source area near monitoring well LW-MW-1S. Soil matrix and groundwater sampling performed in 2004 indicate that no VOCs greater than laboratory analytical method reporting limits were measured in soil samples along the sanitary sewer pipe below and west of the former LTLW tenant space. Given the lack of PCE in soil and groundwater underneath the building, PES previously concluded it "is unlikely that significant release of PCE or other solvents occurred inside Lake Tahoe Laundry Works."[157] The Regional Board concurred, stating: Preferential pathways were considered by Water Board Staff when evaluating whether potential off-site PCE sources affected the Facility [Big O Tires Store]. The 2004 Supplemental Site Investigation Report for the Laundry [LTLW] site shows that extensive sampling was conducted along the sewer line on the property. When samples failed to show PCE detections, the sewer line was ruled out as a preferential pathway for contaminant migration.[158] While these investigations failed to identify any support for the Regional Board's suggestion that PCE originating from the LTLW was conveyed to Tucker Basin via subsurface utilities, studies of the former Big O Tires site have identified that site as a source. Investigations have shown that the storm drain pipeline on the Big O Tires site conveyed surface water runoff from the former Big O Tires facility to Tucker Basin. The direction of flow within the pipelines from the former Big O Tires facility to Tucker Basin is evident from the fact that the	We disagree. Lahontan Water Board staff consider both parties to be responsible for further investigation and potential remediation within Tucker Basin based on the available information which indicates potential discharge to Tucker Basin from both sites. See Response to Comment Nos. 16 (incomplete preferential pathway investigation; Site/Big O as source of discharge to stormwater conveyance system/Tucker Basin; disregard of Site's potential contribution to stormwater conveyance system), 9 (prior statements based upon incomplete data set), 6 (incomplete delineation and CSM needs updating), 8 (incomplete remediation; off-Site migration not addressed), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners) and 27 (existence of other potential dischargers does not relieve Dischargers of liability).

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				invert[159] of the storm drain pipeline on the Big O Tires site was higher than the invert of the storm drain pipeline that enters the facility beneath Lake Tahoe Boulevard from the LTLW.[160] The Regional Board itself has concluded that the Big O Tires site discharged PCE to Tucker Basin: The presence of PCE and petroleum hydrocarbons in soil gas at the stormwater conveyance system inlet, standard stormwater management practices at the time of discharge, and Site history indicate stormwater runoff contaminated with chlorinated hydrocarbons (e.g., PCE) and/or petroleum hydrocarbons from the Site transported via surface flow, as directed by the Site's grading to the former stormwater conveyance system's drop inlet and then discharged to Tucker Basin.[161] Given the Regional Board's determination, any further sampling activities within Tucker Basin should be performed in connection with investigation of PCE sources and preferential pathways on the Big O Tires site. As discussed above in Section 1.2, Seven Springs and Fox did not receive permission from the owners of the Big O Tires site to complete the Stage 2 Preferential Pathway Evaluation and Data Gap Investigation on that property.	
63	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	31	As explained in the October 2019 Investigation Summary Report,[162] relatively low PCE concentrations in shallow zone groundwater may be the source of PCE masses measured in the passive soil gas sampling devices placed within Tucker Basin. PCE possibly diffused from a source in the vadose zone at the Big O Tires site and migrated through backfill surrounding the storm drain pipeline that discharged surface water runoff from the former Big O Tires facility to Tucker Basin. Kerfoot states that "[m]an-made conduits for gases, such as high gas-filled porosity gravel backfill around electrical lines or pipes, can create extremely confusing spatial patterns of soil-gas concentrations if their presence is not taken into consideration."[163] Seven Springs and Fox understand that soil gas data to be obtained on the Big O Tires site will provide additional insight as to the potential source of PCE detected in the vadose zone beneath Tucker Basin.	Comment Noted. See Response to Comment No. 16 (incomplete preferential pathway investigation; the Site and Big O Tires have discharged to Tucker Basin and are both responsible for further investigation).
64	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	31, 32	The Regional Board has suspected for decades that multiple sources of PCE in the Tahoe Valley South Subbasin most probably are responsible for the Regional PCE Contamination. In 1999, the Regional Board stated its intention to "direct PRPs [potentially responsible parties], likely vehicle repair and printing shops, to conduct investigations and determine whether they are sources of solvent chemicals in ground water and in drinking water wells."[164] In 2016, sampling by the Regional Board's contractor, URS, "narrowed the area of likely PCE discharge to a nine-block area."[165] Seven Springs and Fox have provided detailed information to the Regional Board about potential sources of the Regional PCE Contamination, much of it derived from the Regional Board's own files.[166] When the Regional Board refused to act on this information, Seven Springs and Fox voluntarily conducted their own sampling in 2017,[167] which identified PCE in groundwater near several suspected off-Site PCE sources.[168] As noted in Section 1.2, in 2019, the Regional Board stated "[s]everal businesses in the South Y area are known or	Comment Noted. Lahontan Water Board staff acknowledge the potential for additional sources to be contributing to the regional PCE plume and are continuing to pursue SCAP funding for source area investigation tasks. See Response to Comment Nos. 20 (pursuit of SCAP funding) and 27 (identification and naming of other dischargers and pursuit of SCAP source area investigation funding). The Dischargers have not identified other PCE sources contributing mass to the regional PCE plume using consistent source identification criteria (e.g., after applying the source area identification contained in EKI's Amended Groundwater Investigation Work Plan) with the exception of the Big O Tires and Former Norma's Cleaners sites. The Order requires the CSM to be updated and potential source areas identified after application of consistent source identification criteria. See Response to Comment Nos. 6 (CSM needs updating), 34 (URS investigation and lack of information supporting other sources), and 9 (prior statements based upon an incomplete data set).

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				suspected to have used, stored, or disposed of PCE or PCE-containing products" and pledged to use a $4.6 million SCAP grant to "track down all potential sources of pollution" to the Regional PCE Contamination.[169] In the Proposed Order, the Regional Board acknowledges "that additional, as-yet-undetermined, sources may have contributed to the high concentrations of PCE detected north of Lake Tahoe Boulevard,"[170] and it continues to cite data obtained from the voluntary investigation as evidence of a discharge from the Norma's Cleaners site.[171].	
65	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	32, 33	The distinct areas (e.g., LTLW-GW-11, CPT-F01, LTLW-FIF, CPT-G01, CPT-E01, SONIC10, SONIC15) of higher PCE concentrations within the Regional PCE Contamination[172] signify separate locations where PCE has been released to the Tahoe Valley South Subbasin. Prakash and Datta used kriging to generate concentration contours for different numbers and arrangements of modeled sources.[173] Contaminant concentration patterns surrounding sources modeled by Prakash and Datta[174] resemble those associated with higher PCE concentrations within the Regional PCE Contamination that AECOM also generated by kriging.[175] According to environmental forensics guidance: At sites impacted by chlorinated solvents of a single source or release, the parent and/or daughter compounds often occur in the order of tetrachloroethene (PCE), trichloroethene (TCE), dichloroethane (DCE), and vinyl chloride (VC) from upgradient to downgradient. For each individual compound, the concentration typically decreases from upgradient to downgradient. In cases in which this sequence of occurrence is interrupted and/or concentration pattern is reversed, potential additional sources should be considered and more efforts made to collect data to confirm or rule out the hypothesis.[176] Consistent with the above guidance, Seven Springs and Fox corroborated that PCE "hot spots" are likely attributable to PCE releases at off-Site properties by reviewing additional information related to off-Site properties where releases of chlorinated solvents might have occurred.	Comment Noted. See Response to Comments No. 6 (incomplete delineation), 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other dischargers), 36 (use of AECOM's visualization tool and two key conclusions, and 45 ("hot spots" within the regional PCE plume). In addition, Lahontan Water Board staff acknowledge the contaminant concentration patterns modeled by Prakash and Datta relative to the available data and the need for additional data collection to evaluate data gaps, including identification of additional potential source areas using consistent source identification criteria. However, neither the Dischargers nor Lahontan Water Board staff have been able to correlate these "hot spots" to specific potential sources where source identification criteria can be applied. Lahontan Water Board staff also note that available information does not indicate any separation between the "hot spots", the regional PCE plume, and affected receptors. See Response to Comment No. 64 (acknowledgement of other potential sources and pursuit of SCAP funding), 40 (no separation between the Site and regional PCE plume; acknowledgement of complexities and uncertainty around Lake Tahoe Boulevard), and 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners).
66	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	34	Most questionnaire responses provide information only regarding current activities at the property. Information concerning past operations that may have entailed use of chlorinated solvents is lacking, even though it was specifically requested by the Regional Board.[179] The record does not offer any indication that the Regional Board followed up with questionnaire recipients to require them to provide this critical information. Irrespective of the incomplete chemical use history, the data that are available reveal widespread use of chlorinated solvents within the Tahoe Valley South Subbasin.[180] Many of the sites discovered to use chlorinated solvents coincide with PCE "hot spots" in groundwater, as shown in Table 1.	Comment Noted. See Response to Comments No. 27 (identification and naming of other dischargers) and 45 ("hot spots" within the regional PCE plume). Lahontan Water Board staff are aware of the incomplete questionnaire responses received and potential data gaps regarding past owners, operators and chemical use history. See *Subject: Summary of 13267 Site History Questionnaires as of July 26, 2019 Memorandum* dated August 22, 2019 for summary of the status of April 3, 2019 Water Code section 13267 Investigative Orders. Lahontan Water Board staff initially issued 29 Notices of Violation on June 12, 2019 to potential responsible parties who did not complete and submit the required Site History Questionnaire.
67	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry	34	A number of businesses acknowledge in their responses past or present use of PCE at their properties, including with respect to: former Big O Tires (1961 Lake Tahoe Boulevard), Liberty Utilities (933 Eloise Avenue), Flyers Energy LLC (2070 James Avenue), South Tahoe Refuse and Recycling Services (2140 Ruth Avenue), and City	Comment Noted. See Response to Comment Nos. 27 (identification and naming of other potential dischargers, which has no bearing on Dischargers' liability). Former Big O Tires (1961 Lake Tahoe Boulevard), Liberty Utilities (933 Eloise Avenue), Flyers Energy LLC (2070 James Avenue), South

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		Works Cleanup and Abatement Order		of South Lake Tahoe (1663, 1669, and 1679 Shop Street). Besides LTLW, at least three dry cleaners that used PCE existed within or near the South Y Area. these former dry cleaners were Norma's Cleaners, Tahoe One Hour Cleaners (2301 Lake Tahoe Boulevard), and Lampson One-Hour Cleaners/Sierra Dry Cleaners/S&S One Hour Cleaners (2022 Lake Tahoe Boulevard).	Tahoe Refuse and Recycling Services (2140 Ruth Avenue), and City of South Lake Tahoe (1663, 1669, and 1679 Shop Street), Norma's Cleaners, Tahoe One Hour Cleaners (2301 Lake Tahoe Boulevard), and Lampson One-Hour Cleaners/Sierra Dry Cleaners/S&S One Hour Cleaners (2022 Lake Tahoe Boulevard) are all included in AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing PCE mass to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
68	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	34, 35	Some entities state that no chlorinated solvents are currently used in their operations, but hazardous waste records indicate otherwise. For example, Barton Memorial Hospital (2170 South Street) and automobile service and repair facilities at 912 Eloise Avenue (Sunshine Taxi, Inc.), 927 Eloise Avenue (Struve Automotive), 2143 Eloise Avenue (Eloise Automotive & Alignment), 1855 Lake Tahoe Boulevard (Cardinale Way Toyota), 1901 Lake Tahoe Boulevard (Les Schwab Tire Center), and 2119 Ruth Avenue (Five Star Automotive) claim no chlorinated solvents are employed in their operations. However, review of generator records or hazardous waste shipment data from the DTSC Hazardous Waste Tracking System show spent solvents have been classified and manifested for disposal from these businesses as a D039 PCE Resource Conservation and Recovery Act (RCRA) hazardous waste.[181] There is no indication that the Regional Board ever followed up with these facilities regarding the inaccuracies in their questionnaire responses, even after Seven Springs and Fox pointed these out to the Regional Board.[182]	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential dischargers, which has no bearing on Dischargers' liability). Barton Memorial Hospital (2170 South Street) and automobile service and repair facilities at 912 Eloise Avenue (Sunshine Taxi, Inc.), 927 Eloise Avenue (Struve Automotive), 2143 Eloise Avenue (Eloise Automotive & Alignment), 1855 Lake Tahoe Boulevard (Cardinale Way Toyota), 1901 Lake Tahoe Boulevard (Les Schwab Tire Center), and 2119 Ruth Avenue (Five Star Automotive) are all included in AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing PCE mass to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
69	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	35	Other businesses or entities indicate chlorinated solvents may have been used or are uncertain about historical practices at their properties. Of these businesses or entities, Ed's Auto Body (2314 Lake Tahoe Boulevard), former Wheel Works (2317 Lake Tahoe Boulevard), City of South Lake Tahoe (1700 D Street), Tahoe Import Auto and Rubicon Moon Automotive (1746 and 1748 D Street), South Side Auto Body (920 Eloise Avenue), and former South Shore Motors (1875 Lake Tahoe Boulevard) have or appear to have used PCE based upon a review of environmental site assessment reports, U.S. EPA's RCRA database, and the DTSC Hazardous Waste Tracking System that indicates PCE was released or spent PCE was generated at these sites.	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential dischargers, which has no bearing on Dischargers' liability). Ed's Auto Body (2314 Lake Tahoe Boulevard), former Wheel Works (2317 Lake Tahoe Boulevard), City of South Lake Tahoe (1700 D Street), Tahoe Import Auto and Rubicon Moon Automotive (1746 and 1748 D Street), South Side Auto Body (920 Eloise Avenue), and former South Shore Motors (1875 Lake Tahoe Boulevard) are all included in AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing PCE mass to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
70	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	35	The absence of chlorinated solvent disposal for a business listed in the DTSC Hazardous Waste Tracking System does not preclude historical use of PCE at the property, as the DTSC database tracks only those hazardous waste shipments that occurred from 1993 to the present.[183] Certain businesses identified by the Regional Board as possibly using chlorinated solvents, initiated operations as early as the 1940s. Therefore, records of chlorinated solvent disposal between the 1940s and 1993 cannot be verified in the DTSC Hazardous Waste Tracking System. The Regional Board has not adequately investigated the historical use of chlorinated solvents at properties operating prior to 1993.	We agree that the absence of records in the DTSC Hazardous Waste Tracking System does not preclude historical use of PCE at the property as is the case with the Site. We disagree that the Lahontan Water Board has not adequately investigated historical use of chlorinated solvents. Lahontan Water Board utilized currently available data and required the submittal of chemical use questionnaires at specific properties to support the initial screening of potential PCE source contributing to the regional PCE plume. Lahontan Water Board staff acknowledge the incomplete, and often times misleading, information contained in the questionnaires. However, this information was used to generate the "source area inventory" and is considered the most up to date and comprehensive information available. See Response to Comment No. 27 (identification and naming of other potential dischargers, which has no bearing on Dischargers' liability).

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71	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	35, 36	Many businesses have been assigned hazardous waste Identification (ID) numbers, but no hazardous waste shipment data are included in the DTSC Hazardous Waste Tracking System because these businesses ceased generating hazardous waste before 1993. Given the prevalence of PCE use by businesses engaged in dry cleaning, automobile maintenance and repair, printing, machining, or auto body repair, it would be reasonable to presume chlorinated solvent usage where the same types of activities have been conducted, but no documentation on chemical use and disposal is readily available. Although Seven Springs and Fox assembled compelling evidence that many actual and potential sources of PCE exist within or near the South Y Area, it is not a complete listing of such sources. Omitted properties where current or former businesses may have engaged in activities that involved chlorinated solvents, such as dry cleaners, laundromats, carpet cleaning businesses, automotive repair shops, paint and auto body shops, and printing shops,[184] but for which no questionnaire was received by the Regional Board. Examples include Crow's Auto Care (931 3rd Street), Runnels Automotive (986 Emerald Bay Road), South Side Auto Body (927 James Avenue), Ken's Tire Center (2104 Lake Tahoe Boulevard), and Instant Copy Although Seven Springs and Fox assembled compelling evidence that many actual and potential sources of PCE exist within or near the South Y Area, it is not a complete listing of such sources. Omitted properties where current or former businesses may have engaged in activities that involved chlorinated solvents, such as dry cleaners, laundromats, carpet cleaning businesses, automotive repair shops, paint and auto body shops, and printing shops,[184] but for which no questionnaire was received by the Regional Board. Examples include Crow's Auto Care (931 3rd Street), Runnels Automotive (986 Emerald Bay Road), South Side Auto Body (927 James Avenue), Ken's Tire Center (2104 Lake Tahoe Boulevard), and Instant Copy	Comment Noted. See Response to Comment Nos. 27 (identification and naming of other potential dischargers, which has no bearing on Dischargers' liability) and 70 (records absence does not preclude potential chemical use). Crow's Auto Care (931 3rd Street), Runnels Automotive (986 Emerald Bay Road), South Side Auto Body (927 James Avenue), Ken's Tire Center (2104 Lake Tahoe Boulevard), and Instant Copy are all included in AECOM's "source area inventory" and will be evaluated, and prioritized for additional investigation, as a potential source contributing PCE mass to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
72	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	36	Runnels Automotive and Ken's Tire Service are of particular interest. Runnels Automotive is located next to monitoring well pair OS-2S/OS-2M constructed in Tucker Avenue. Releases at the Runnels Automotive site may be contributing to PCE detected in these monitoring wells. In 1998, sampling of the City of South Lake Tahoe sanitary sewer system by the Regional Board found chlorinated solvents in a segment downstream of "vehicle parts and repair shops on Tucker Avenue."[185] A map included in a Regional Board letter, dated 3 October 2001, indicates PCE was detected at 1.5 µg/L at 20 feet bgs and 69 µg/L at 40 feet bgs beneath the Runnels property at 986 Emerald Bay Road.[186] Past and present chemical use at Ken's Tire Service also is illustrative. Like Les Schwab Tire Center and Wheel Works, chemical use at Ken's Tire Service provides insight into the chemical use of current or former businesses selling tires and performing automobile service and repair within or near the South Y Area. High Sierra, Inc. dba Ken's Tire Service, uses PCE in its operations. Review of DTSC hazardous waste generator records shows Ken's Tire Center disposed of 67 to 267 pounds of hydrocarbon solvents as D039 PCE RCRA hazardous waste per year between 2010 and 2017.[187] These PCE	Comment Noted. See Response to Comment No. 27 (ongoing investigation of potential dischargers). Runnels Automotive and Ken's Tire Service are included in AECOM's "source area inventory" and will be evaluated for the need for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow.

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				quantities correspond to roughly 5 to 20 gallons of PCE annually, assuming a PCE density of 13.5 pounds per gallon. In 2000, Ken's Tire Center disposed of 709 pounds of liquids with halogenated organic compounds as a F002 spent halogenated solvent RCRA hazardous waste.[188] In 2003, Ken's Tire Center disposed of 459 pounds of unspecified oil-containing waste as a F001 spent halogenated solvent used in degreasing RCRA hazardous waste.[189] Both F001 and F002 RCRA hazardous wastes can consist partially or completely of PCE.	
73	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	36	Ken's Tire Center's inconsistent approach to profiling spent PCE suggests the possibility that other businesses may have misclassified spent PCE as simply unspecified oil-containing waste, hydrocarbon solvent, unspecified solvent mixture, or waste oil and mixed oil. Chlorinated solvents, including PCE, are commonly found in used oil.	Comment Noted. See Response to Comment No. 27 (ongoing investigation of potential dischargers). Ken's Tire Center is included in AECOM's "source area inventory" and will be evaluated for the need for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
74	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	37	Les Schwab Tire Center and Wheel Works also have disposed of PCE as a D039 RCRA hazardous waste.	Comment Noted. See Response to Comment No. 27(identification and naming of other potential sources, which has no bearing on Dischargers' liability). Les Schwab Tire Center and Wheel Works are included in AECOM's "source area inventory" and will be evaluated for the need for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
75	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	37	Although operators of the former Big O Tires facility have acknowledged the use of solvents containing chlorinated VOCs,[191] no records exist in the DTSC Hazardous Waste Tracking System that show Big O Tires disposed of any wastes as either non-RCRA or RCRA hazardous waste from 1993 to 2006 when the former Big O Tires ceased operating. Big O Tires may have disposed of hazardous waste before 1993 as the DTSC database tracks only those hazardous waste shipments that occurred from 1993 to the present.	Comment Noted. See Response to Comment Nos. 32 (ongoing enforcement actions at Big O Tires) and 70 (the lack of records in the DTCS Hazardous Waste Tracking System does not preclude potential chemical use at a particular site).
76	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	37	STPUD's evaluation of possible contaminating activities (PCAs) confirms Seven Springs and Fox's findings that numerous sources may be contributing PCE to groundwater within the Tahoe Valley South Subbasin. Utilizing the PCA inventory methodology[192] established by the California Department of Health Services, STPUD identified *418 distinct* geographically scattered sources of potential contamination.[193] Sources identified by STPUD include gasoline service stations, automobile repair facilities, automobile body shops, and boat repair and refinishing facilities.[194] Pursuant to CDHS guidance documents, certain types of PCA sites in the Tahoe Valley South Subbasin have a high potential or very high potential for contaminating groundwater.[195] STPUD's ranking of PCA sites from low threat to very high threat is presented in its Groundwater Management Plan.[196]	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability). All "PCA" sites identified and ranked by the "District" within the regional PCE plume area are included in AECOM's "source area inventory" and will be evaluated for the need for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow.
77	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	37, 38	In addition, findings from Seven Spring and Fox's most recent effort in 2020 to identify known or potential sources of PCE contamination to groundwater in the South Y Area were used by the Regional Board and AECOM to categorize off-Site PCE sources to groundwater[197] and create a "potential source area inventory."[198]	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability). Sites included in AECOM's "source area inventory" will be evaluated for the need for additional investigation, as a potential source contributing to the regional PCE plume as funding and Lahontan Water Board staff resources allow

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78	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	38	The Regional Board has a history of failing to require sources of the Regional PCE Contamination to properly investigate and remediate impacts associated with PCE releases that have occurred at these off-Site properties. Notably, the Regional Board initially granted closure of the Norma's Cleaners site even though it had ascertained that PCE in soil on the site may be leaching to groundwater,[199] and at one point the Regional Board proposed closure of the former Big O Tires site, despite previously determining the site was inadequately characterized.[200] Even after issuing orders to the owners of those sites in 2019, the Regional Board has not been able to secure completion of the requested work.	Comment Noted. See Response to Comment No. 32 (ongoing enforcement actions at Former Norma's Cleaners and Big O Tires sites). See also Response to Comment No. 9 (prior statements and conclusions based upon incomplete data set).
79	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	38	The Regional Board sent Notices of Violations (NOVs) to 24 entities that did not respond to Water Code § 13267 Investigative Orders issued to known and suspected sources of PCE.[201] The NOVs seem to have been ignored. The Regional Board still does not appear to have the information requested from entities that received the NOVs in June 2019. The Regional Board also has not followed up with other parties who provided incomplete or inaccurate information requested by the Investigative Orders.	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability).
80	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	38	More recently, the Regional Board has not reconciled its potential source area inventory with STPUD's PCA site threat rankings to prioritize those sites that should be investigated to determine if they are contributing PCE to the Tahoe Valley South Subbasin.	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability) and 76 (PCA sites are included on AECOM's "source area inventory").
81	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	39	In Paragraph 34, the Proposed Order states that the Regional Board issued site-specific Water Code § 13267 investigative orders requiring suspected dischargers to assess the PCE impacts to soil, soil gas, and groundwater. The Proposed Order further states that the assessments are ongoing. Other than with respect to the former Big O Tires and Norma's Cleaners sites, Seven Springs and Fox are not aware of these investigative orders and request copies of the issued directives and any assessments that have been undertaken to date. The results of those assessments should be evaluated, and, if appropriate, additional investigations should be conducted to define the lateral and vertical extents of PCE that has emanated from the properties in question.	Comment Noted. Lahontan Water Board staff have kept the Dischargers aware of their ongoing regulatory efforts and have included the Dischargers on relevant correspondence and interested party lists. Paragraph 34 of the Order references the site-specific WC section 13267 investigative orders that were issued to the Big O Tires and the Former Norma's Cleaners sites; the Dischargers were included in this correspondence. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability). See also *CAO Staff Report Table 11 Summary of Site-specific and Regional Investigations* for a summary of site-specific and regional investigations conducted by the Lahontan Water Board and others. Information associated with the site specific and regional investigations are currently available on the Geotracker website.
82	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	39	The Regional Board must collate the available lines of evidence so it can identify all sites that need to be investigated to determine if they have added to the Regional PCE Contamination. Attached Table 1 provides a starting point for this effort.	Comment Noted. Lahontan Water Board staff acknowledge the information presented in Table 1 and are continuing to evaluate potential sources contributing mass to the regional PCE plume as funding and Lahontan Water Board staff resources allow. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability).
83	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry	39	As evidenced by the inability of Seven Springs and Fox to gain access to investigate conditions on the former Big O Tires site, testing required by the Proposed Order probably would be constrained to public right of ways (e.g., streets). Collection of data on the suspected source properties themselves is needed to establish the off-Site sources that must be abated to restore groundwater throughout the	We agree. Known dischargers must clean up and abate discharges. See Response to Comments No. 18 (access to Big O Tires) and 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability).

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		Works Cleanup and Abatement Order		Tahoe Valley South Subbasin to its beneficial uses and to comply with the antidegradation policy embodied in State Water Board Resolution No. 68-16. Parties that have contributed to the Regional PCE Contamination should be required to remediate the impacts that have resulted from releases at their properties.	
84	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	39	The Regional Board's own contractor, AECOM, has acknowledged the importance of evaluating the potential source area inventory "relative to the shallow regional PCE plume characterization data to help identify potential responsible parties that may be contributing to the regional PCE plume, support the siting of select soil gas sampling locations as discussed in the Soil Gas Investigation Work Plan and the Soil Gas Investigation Work Plan Addendum, and support the need for future source area investigations and remediation."[202] Yet, the Regional Board has made no apparent progress in accomplishing these objectives. Although the Regional Board has been aware of PCE impacts to municipal supply wells within the Tahoe Valley South Subbasin for 33 years,[203] the Regional Board commits only to "continue to make a reasonable effort to identify additional dischargers contributing to the regional PCE plume."[204]	Comment Noted. See Response to Comment No. 27 (identification and naming other potential sources, which has no bearing on Dischargers' liability).
85	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	39, 40	Seven Springs and Fox provided comments on the passive Soil Gas Investigation Work Plan.[205] As noted in these comments, the State of California Environmental Protection Agency (CalEPA) advises soil gas sampling locations should be based initially on the location of known or suspected release(s), site operations, and history of chemical use.[206] Consequently, Seven Springs and Fox recommended that the passive soil gas investigation be expanded to include (1) PCE detected in shallow zone groundwater at the western end of the South Y Area, where the Regional Board has determined an off-Site PCE source is present,[207] and (2) all PCE source areas categorized as having a high or medium potential of contributing PCE to the Regional PCE Contamination.[208] Passive soil gas sampling can be an effective method to identify volatile organic compound source areas in the vadose zone and generally delineate the extent. AECOM did not adopt these recommendations and the Regional Board did not acknowledge that it even considered Seven Springs and Fox's comments.	We agree. The investigation required by the 2017 CAO remains incomplete. See Response to Comment No. 6 (incomplete delineation). As indicated in AECOM's *Soil Gas Investigation Work Plan*, the purpose of the work plan is to further evaluate the vapor intrusion to indoor air pathway in areas where PCE concentrations in shallow groundwater exceed environmental screening levels for vapor intrusion to indoor air based on existing available data. The work plan may provide further lines of evidence regarding potential source areas potentially contributing to the regional PCE plume but is not intended to be a source area investigation work plan. Lahontan Water Board staff reviewed the comments provided by Fox and Seven Springs on AECOM's *Soil Gas Investigation Work Plan*. Following the review of the comments and work plan, Lahontan Water Board staff determined some of the comments had merit while others did not. For example, Fox and Seven Springs recommended performing additional passive soil gas sampling in the western end of the South Y Area due to PCE concentrations in CPT-E02, CPT-F08, SB-08, SB-09, and SB-10. Lahontan Water Board staff note boring SB-08, SB-09, and SB-10 meet criteria for passive soil gas sampling (i.e., PCE concentrations above the vapor intrusion to indoor air ESL in first encountered groundwater), but CPT-E02 and CPT-F08 do not, since clean water was reported at depths above the contaminated water. Lahontan Water Board staff acknowledge the existing data gaps associated with SB-08, SB-09, and SB-10. Compliance with the Order will result in the CSM being updated and data gaps identified, including identification of potential source areas, to support work plan development and recommendations. The Vapor Intrusion Work Plan required by the Order will evaluate potential threats to human health and the environment posed by the regional PCE plume.
86	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake	40	Nor has the Regional Board meaningfully assessed groundwater PCE concentration anomalies listed in Table 1 that are correlated with off-Site sources. Despite acknowledging "potential additional PCE sources may be contributing PCE mass to the regional PCE plume,"[209]	We disagree. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability). See also Response to Comment Nos. 22 (regional PCE plume begins at the

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		Tahoe Laundry Works Cleanup and Abatement Order		the Regional Board dismisses their significance by claiming its "[i]nitial review of groundwater data relative to source area inventory locations, did not indicate any 'hot spots' in shallow groundwater that could not be potentially attributed to the Site."[210] No rationale is offered for why LTLW is responsible for "hot spots," which, by definition, are indicative of additional sources.[211]	Site and continues, uninterrupted, to various receptors) and 45 ("hot spots" within the regional PCE plume).
87	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	41	Contrary to the Regional Board's assertion, Seven Springs and Fox consistently applied the source identification criteria approved by the Regional Board.[215] These criteria are described in EKI's Amended Groundwater Investigation Work Plan[216] and listed on page 44 of the Regional Board Staff Report. Based on these criteria, a site is considered to be a source if operations associated with solvent use took place on the property; site-specific information, such as chemical use inventories, disposal records, soil samples with detections of VOCs, and/or elevated VOC concentrations in soil gas samples, indicate chlorinated solvents were used on the property; and VOC concentrations in groundwater samples collected from locations downgradient of the potential source are significantly higher than VOC concentrations in groundwater samples collected in the same hydrogeological unit from locations upgradient of the potential source. Applying these criteria, Seven Springs and Fox identified Big O Tires site as an off-Site source.[217] The Regional Board's criticism is perplexing because it also has determined that Big O Tires meets the source identification criteria[218] and that the site has discharged PCE to Tucker Basin.[219]	We disagree. The Dischargers have not consistently applied source identification criteria. See Response to Comment No. 27 (identification and naming of other dischargers). Dischargers have applied one set of criteria to their Site and a different set of criteria to other potential sources, resulting in an incomplete and inaccurate analysis of potential contributors to the regional PCE plume. For example, Dischargers have not identified the Site itself or its potential discharge of PCE contamination to Tucker Basin in spite of highlighting similar data to identify the potential contribution of PCE contamination to Tucker Basin by the Former Big O Tire site (e.g. elevated contaminant mass has been reported in passive soil gas samples collected near stormwater inlets in parking lots). See also Response to Comments No. 6 (incomplete delineation; CSM needs updating), 18 (access to Big O Tires), 32 (ongoing enforcement actions at Big O Tires), and 16 (discharge to stormwater conveyance system/Tucker Basin; disregard of Site's potential contribution to stormwater conveyance system).
88	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	41, 42	The owners of the former Big O Tires site denied Seven Springs and Fox access to investigate environmental conditions on the site,[220] and the Regional Board has repeatedly declined to secure that access on their behalf, as documented in Planning and Progress Reports submitted to the Regional Board.[221] Seven Springs and Fox complied with the investigative decision logic agreed upon by the Regional Board, which required the parties to seek access to the potential source property from the relevant landowner, and, if unsuccessful, document efforts made to obtain access and seek assistance from the Regional Board.[222] Seven Springs and Fox were to complete sampling upon obtaining access to the property, which, largely due to the Regional Board's unwillingness to compel access, has not occurred.	We disagree. See Response to Comment No. 18 (access to Big O Tires and investigation, enforcement and draft CAO pertaining to that site) and 32 (ongoing enforcement actions at Big O Tires).
89	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	42	Further, the decision logic specifies that "if an additional source of VOCs to groundwater appears to have been identified," Seven Springs and Fox would "present the results to the Water Board for appropriate action."[223] In its preparation of the decision logic, Seven Springs and Fox understood this action to mean the Regional Board would require the responsible parties for the off-Site release to characterize its impacts. Accordingly, the Regional Board issued the 2019 order to responsible parties for Big O Tires to delineate the contamination emanating from that property. As discussed in Section 2.6, potential impacts to Tucker Basin are likely associated with a release at the former Big O Tires facility and should be investigated by the responsible parties for that property.	Comment Noted. See Response to Comment No. 18 (access to Big O Tires and investigation, enforcement and draft CAO pertaining to that site) and 16 (discharge to stormwater conveyance system/Tucker Basin; incomplete preferential pathway investigation).
90	PES/EKI	September 19, 2022 Subject: Comments on	42	Seven Springs and Fox also determined the former Norma's Cleaners site meets source identification criteria[224] and have advised the Regional Board of significant data gaps concerning investigative and	Comment Noted. See Response to Comment No. 18 (investigation, enforcement and

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		Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order		remedial actions at the property.[225] The Regional Board concurs and issued an investigative order[226] and a proposed CAO[227] in 2019 and 2022, respectively, to responsible parties of the Norma's Cleaner site. The Regional Board concludes that the Norma's Cleaners site meets source identification criteria, including documented chlorinated solvent use, on-site contamination, and higher groundwater PCE concentrations downgradient of the site.[228]	draft CAO at the Former Norma's Cleaners site) and 32 (ongoing enforcement actions at Former Norma's Cleaners).
91		September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	43	The requirement to delineate the Regional PCE Contamination as depicted by the Regional Board is overly broad. As discussed in Section 2.2, AECOM consolidated PCE data for all hydrostratigraphic units onto one plan map (Figure 8 of the Proposed Order) and then generated contours without considering groundwater flow directions and, hence, whether the contours are realistic. Additionally, AECOM omitted certain PCE data sets, such as URS's 2015 investigation, without examining the ramifications on the PCE concentration contours by doing so. A prominent effect of these flaws is distinct plumes within hydrostratigraphic units associated with off-Site sources are obscured. Distinct plumes obscured on Figure 8 are shown on Figures 52 through 54 of the Staff Report and Figure 5-5 in EKI's October 2021 Investigation Summary Report that group data by hydrostratigraphic units and account for the effects of groundwater movement.	We disagree. The requirement to complete delineation of the vertical and lateral extent of the discharge originating from the Site is not overly broad and is consistent with State Water Board Resolution 92-49, to investigate and clean up and abate the entire extent of discharge. Available information, including the approximately 620 discrete depth groundwater samples collected during AECOM's Regional PCE Plume Investigation, does not indicate any separation between the Site, the regional PCE plume and affected receptors. Lahontan Water Board staff acknowledge the difference between Figure 3 and Figures 52 through 54 of the Staff Report. However, Lahontan Water Board staff note that Figures 52 through 54 of the Staff Report are excerpted from EKI's October 1, 2020 Investigation Summary Report and may not accurately represent existing site conditions due to the exclusion of particular data; the Staff Report uses the figures as examples of the Dischargers knowledge of the extent of the discharge originating from the Site. For example, Figures 53 and 54 illustrate a distinct plume emanating from the Tahoe One Hour Cleaners/Wheel Works/Ed's Auto Body area. However, the available data does not support this interpretation since PCE concentrations above 0.5 ug/L were not reported in CPT-G-11 at any depth interval between 30 and 77.5 feet bgs. CPT-G-11 is located along Eloise Avenue (i.e., down-gradient of the potential sources along Lake Tahoe Boulevard) and within the boundaries of the illustrated PCE plumes (i.e., >RL-4.9 and 5-10 ug/L). Lahontan Water Board staff also note AECOM elected to represent "current conditions" by utilizing groundwater data from January 1, 2018 to September 5, 2020. Thus, data from URS's 2015 investigation was not included in the EVS visualization tool developed by AECOM. The inclusion of the URS dataset in AECOM's EVS visualization tool would not change Order findings or conclusions. See Response to Comment Nos. 116 (concerns with investigation strategy), 36 (use of AECOM's data visualization tool and in particular the two key conclusions), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), and 34 (URS investigation and absence of PCE concentrations in shallow groundwater above the MCL).
92	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	43	The Proposed Order requires Seven Springs and Fox to characterize the lateral and vertical extents of improperly lumped contamination due to multiple sources.[231] The unreasonableness of this requirement is evident from even a superficial review of Figure 8 despite its flaws. Figure 8 depicts an area between Tahoe Valley Elementary School and Tahoe Keys Boulevard where no PCE is detected in groundwater at any depth. PCE in groundwater flanks the west and east sides of this clean area. The Regional Board does not explain how a single source, let alone the LTLW, can be responsible for this PCE distribution in groundwater and its further delineation. Because the plume depicted on Figure 8 of the Proposed Order links chlorinated	We disagree. The key conclusion, supported by substantial data, is that the Site is contributing mass to the regional PCE plume and that the Site is irrefutably "linked" to the regional PCE plume which extends, uninterrupted, to various receptors. The Dischargers seek to pick apart particular datapoints, but have not refuted this key conclusion. With respect to Figure 8, AECOM's EVS data visualization tool presents a reasonable statistical estimate and depiction of the regional PCE plume utilizing recent (post 2017 CAO; 2017-2020) groundwater data collected by both the Dischargers and AECOM. See Response to Comment Nos. 22 (regional PCE plume begins at the Site and

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				VOC detections that cannot possibly be related, the delineation mandate is untethered to any meaningful metric and never could be completed.	continues, uninterrupted, to various receptors), 36 (usefulness of AECOM's data visualization tool and in particular the two key conclusions), 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability) and 35 (separation between the Site, the regional PCE plume and contamination in CPT-G06 i.e., in the vicinity of the "eastern lobe").
93	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	43, 44	The value of delineating lateral and vertical extents of the Regional PCE Contamination to non-detectable concentrations is questionable given the Regional Board has not identified all off-Site sources responsible for the contamination. The NRC states: [I]t is important to avoid over-delineation of the plume at the expense of more localized source zone characterization efforts. This means that as salient information about site hydrogeology and plumes is gleaned from the larger-scale site characterization efforts, potential source zone configurations should be added to the site conceptual model.[232] Off-Site sources that are sustaining the Regional PCE Contamination must be identified and remediated to restore groundwater to its beneficial uses and to comply with the antidegradation policy embodied in State Water Board Resolution No. 68-16. If off-Site sources are not abated, then the only feasible alternative for preserving groundwater as potable supply is to treat water at the wellhead, which currently is being done.	Comment Noted. See Response to Comment No. 27 (identification and naming of other potential sources, which has no bearing on Dischargers' liability). Requiring the delineation of the lateral and vertical extent of contamination originating from a Site to an objective, such as a numeric or narrative standard, is a standard regulatory practice. (See State Water Board Resolution No. 92-49.) Although data gaps remain, the State Water Board's SCAP Regional PCE Plume Investigation has already completed a "reconnaissance level" estimate of the lateral and vertical extents of the regional PCE plume. The Dischargers are expected to incorporate and evaluate data collected by both the Dischargers and others and propose additional data collection activities that will address significant data gaps and support the selection of appropriate remediation and/or wellhead treatment activities. See Response to Comment No. 6 (incomplete delineation and CSM needs updating.) Lahontan Water Board staff acknowledge that wellhead treatment is a feasible alternative for preserving groundwater as potable supply. Because the contamination involves PCE, depending upon the risks of vapor intrusion, additional measures may be necessary to address potential risks to human health. These risks and remedial measures will be addressed when Dischargers comply with the Human Health Risk Assessment and Remedial Action Plan tasks of the Order.
94	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	44	The Regional Board observes that the Regional PCE Contamination has impacted public water system wells within the Tahoe Valley South Subbasin,[233] and is requiring preparation and implementation of Interim Emergency and Permanent Water Replacement Plans.[234] For the reasons discussed in Sections 2 and 3, to the extent PCE has migrated from the LTLW, the concentrations are de minimis and do not materially contribute to the impacts to public water system wells for which the Regional Board is requiring mitigation. As summarized in Section 2.4.2, groundwater samples collected in 2018 from five boreholes placed in Lake Tahoe Boulevard in the downgradient direction of groundwater flow from the LTLW contained PCE at concentrations ranging from non-detection to 28.6 µg/L. Most samples contained PCE at or below the MCL of 5 µg/L.[235] By contrast, the public water system wells at issue have obviously been impacted by sources other than the LTLW. In 2021, PCE was measured as high as 130 µg/L in sentry wells installed by the Regional Board near public supply wells.[236] If PCE in sentry wells were attributable to the LTLW, then PCE concentrations in groundwater along Lake Tahoe Boulevard should be higher than PCE concentrations in sentry wells. As explained in Section 2.3, back diffusion would have established a concentration gradient where PCE levels are highest near the LTLW and decrease with distance from the Site.	We disagree. The comment's conclusions concerning migration from the Site conflict with available data and calculations provided by the Dischargers' own consultants, which estimate potential PCE migration distance in shallow groundwater. See Response to Comment Nos. 57 (Discharger's own contaminant migration calculations; contaminant loading and off-Site migration). The available data does not indicate any separation between the Site, the regional PCE plume, and affected receptors. Further, this comment does not acknowledge that PCE concentrations up to 5,150 µg/L were reported in groundwater monitoring well LW-MW-1S prior to remedial implementation and have ranged between 5,380 µg/L and 1.5 µg/L during AS/SVE remediation system operation. The PCE concentrations reported in LW-MW-1S are the highest concentrations reported within the entire regional PCE plume. See Response to Comment Nos. 27 (regarding other potential sources, which has no bearing on Dischargers' liability), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 40 (concentration gradient does exist; influence of stormwater conveyance system on regional PCE plume geometry) and 43 (back diffusion).
95	PES/EKI	September 19, 2022 Subject:	44, 45	No justification is provided for Tasks 7.b and 7.c, implementing an Interim Emergency Water Replacement Plan and a Permanent Water	We disagree. See Response to Comment No. 22 (regional PCE plume begins at the

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		Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order		Replacement Plan. Wellhead treatment involving granular activated carbon[237] by TKPOA and LBWC eliminates any threat posed by the Regional PCE Contamination to public water systems.[238] In 2019, STPUD and the State Water Board commissioned Kennedy/Jenks Consultants to conduct a human health risk assessment (HHRA) of public water system wells within the Tahoe Valley South Subbasin. The HRRA concluded "[t]he risks to human health from chemicals present in water from active wells currently in use as a drinking water source were found to be acceptable." Thus, no need exists to replace public water system wells on either an interim or permanent basis.[239]	Site and continues, uninterrupted, to various receptors). Water Code section 13304, subdivision (a), authorizes the Lahontan Water Board to require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Consistent with Water Code section 13360, the Order does not prescribe manner of compliance. Dischargers have the ability to present options for compliance as described in the Order. See *CAO Staff Report Section 7 Summary of Receptor Impacts* for discussion of the drinking water supply wells currently threatened, impacted, and impaired by the regional PCE plume. Municipal supply wells spanning three water districts have been impaired, impacted, or remain threatened by the by the regional PCE plume. As a result, impaired supply wells have been removed from service, have been destroyed, or require wellhead treatment to remove PCE from groundwater prior to use for the municipal water supply. Task 7.b allows for payment to be provided if interim water replacement is not selected. Task 7.c requires consideration of wells removed from service and/or destroyed due to PCE impairment (i.e. lost and/or reduced well yield shall be replaced/restored) and evaluation of the threat the regional PCE plume poses to water supply wells that may become impaired in the future and contain a contingency plan to immediately provide uninterrupted replacement water service, should those wells become affected. For example, TKPOA Well #1 has been impacted by the regional plume since 1996 and it is expected to become impaired within the next few years. Although significant effort has been conducted during the SCAP Regional PCE Plume Investigation to 1) identify the SCS and domestic supply wells in areas overlying the regional PCE plume, 2) compile historic groundwater sampling records to evaluate the potential threat the regional PCE plume has posed on the domestic groundwater supply over time and 3) notify property owners of the potential threat from PCE exposure through consumption of groundwater, this effort is incomplete and additional actions are needed to 1) develop an appropriate water replacement plan, 2) continue to evaluate the threat the regional PCE plume poses to supply wells that may become impaired in the future, and 3) determine if SCS and domestic supply wells are acting as vertical conduits for migration of PCE contamination.
96	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	45	In 2017, STPUD conducted a survey of noncommunity water system wells that typically serve individual residences.[240] This study shows perhaps one domestic well is in use on the eastern edge of the Regional PCE Contamination.[241] AECOM also performed a survey of noncommunity water system wells as part of the SCAP grant obtained by the Regional Board. In October 2019, AECOM collected water samples from eight noncommunity water system wells. AECOM collected samples from only eight wells because property owners denied access and many of the noncommunity water system wells are inactive and do not have functional pumps so water cannot be readily obtained from them.[242] In the eight samples that were collected, PCE was not measured above the laboratory analytical method reporting limit of 0.5 µg/L in seven samples and was detected at the reporting limit of 0.5 µg/L in one sample.[243] Further, this detected concentration	Comment Noted. See Response to Comment No. 95 (incomplete well investigation). To facilitate the evaluation of potential threats to human health, AECOM developed a "receptor inventory" to support the State Water Board's Regional PCE Plume Investigation. Although additional work is required to address a number of data gaps, the "receptor inventory" represents the most comprehensive effort conduced to date to identify and evaluate potential receptors (i.e., private and small community supply wells) affected by the regional PCE plume. The "receptor inventory" identifies 18 active private and small community supply wells within or near the regional PCE plume. Of these identified active domestic and SCS wells, three SCS wells have been identified as impaired by the regional PCE plume, two impacted, and two others threatened while three domestic wells have been identified as

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				may not be representative because the laboratory indicated the PCE analytical result could be biased high.[244] Hence, no data have been provided by the Regional Board that domestic wells within the Regional PCE Contamination have contaminants at concentrations above their respective MCLs thereby meeting the definition of an impaired well[245] in the Proposed Order that is subject to emergency water replacement.	threatened by the regional PCE plume. See *CAO Staff Report Section 7.2 Summary of Receptor Impacts- Small Community and Domestic Supply Wells* for a summary of the domestic and small community supply (SCS) wells which have been and/or are currently impaired, impacted, and threatened by the regional PCE plume.
97	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	45, 46	The Proposed Order requires investigation and submittal of work plans and reports and indicates that the burden, including costs, of those reports bears a reasonable relationship to the need for and the benefits to be obtained from the reports. This premise is valid for investigations and submittal of technical documents related to PCE at the LTLW. The requirements are not appropriate for investigations and submittal of reports that are not related to PCE at the LTLW, which includes remediation of regional PCE-impacted groundwater, and investigation and possible mitigation of regional PCE-impacted soil gas. As discussed in Sections 2 and 3, the evidence does not support the Proposed Order's assertion that the Regional PCE Contamination is due to the discharge at the LTLW.	We disagree. See Response to Comments No. 6 (incomplete delineation; CSM needs updating), 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). The investigation and submittal of reports as required by the Order is appropriate for the investigation and cleanup and abatement of the regional PCE plume. As indicated in Response to Comment No. 22, the Site is irrefutably linked to the regional PCE plume and therefore, the burden bears a reasonable relationship to the need for and the benefits to be obtained from the reports. To the extent that Dischargers believe other sources have contributed, see Response to Comment 27 (identification and naming of other dischargers). The regional PCE plume has affected three separate water districts, which supply 97% of the community's water supply, and has reduced the basin's water supply capacity by approximately 10% since 2011. Approximately 38,000 people are served by the three water districts through over 16,700 residential and commercial connections, which rely exclusively upon those drinking water sources. The benefits to be obtained from the required investigation and technical reports are paramount to ensuring safe drinking water supplies for this community. See also Master Response to Legal Comments, section II.
98	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	46	Off-Site sources correlated with distinct areas of higher groundwater contamination (i.e., "hot spots") must be investigated by responsible parties for those sources to establish the effects the releases have on groundwater within the Tahoe Valley South Subbasin. Until off-Site sources are thoroughly characterized, the Regional Board lacks sufficient data to show the discharge at the LTLW is the cause of the Regional PCE Contamination. Without the requisite evidence to link the Regional PCE Contamination to the LTLW, any requirements imposed on Seven Springs and Fox to investigate and submit reports related to regional PCE-impacted groundwater and soil gas are unreasonable and cumbersome. Therefore, the requirements for these investigations and submittal of technical documents should be removed from the Proposed Order.	We disagree. See Response to Comments No. 6 (incomplete delineation), 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other potential dischargers) and 45 ("hot spots" within the regional PCE plume).
99	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	46	Putting aside the lack of evidence showing the Regional PCE Contamination is due to the LTLW, the cost of investigations required by the Proposed Order is unwarranted and disproportionate to any benefit. The Regional Board has been investigating the Regional PCE Contamination for over thirty years. The Regional Board, Seven Springs, and Fox each have spent many millions of dollars performing these investigations. Given the number of PCE sources within the Regional PCE Contamination and the practical and legal challenges in pursuing them, the only plausible remedial approach is wellhead	We disagree. The cost of the required technical reports is not disproportionate to the benefit. See Response to Comment No. 97 (impacts to the entire community and benefits to be obtained). We further disagree that no additional investigation is necessary. See Response to Comment No. 6 (incomplete delineation, including evaluation of potential risks to human health). Selection of wellhead treatment as the only "plausible" remedial approach is premature, and Lahontan Water Board staff are open to the evaluation of other remedial approaches and cannot anticipate all

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				treatment. Millions of dollars in further investigation will not change that.	potentially proposed remedial actions since the FS has not been submitted for review and acceptance. Orders 7b. And 7c. include provisions for water replacement plans. Order 7d. And 7e. require an interim remedial action plan and remedial action plan, respectively. Dischargers may evaluate and propose wellhead treatment in replacement water plans and as interim and final remedies, as warranted.
100	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	46	If the Regional Board nonetheless persists in requiring the additional investigations described in the Proposed Order, it should provide more information to how investigation costs were calculated and correct apparent calculation errors. For example, the cost summary table in Attachment B, 5-Year Cost Estimate Scenario includes a line item for "regulatory oversight" at a "lump sum" cost of $1,000,000. However, the calculated total for this line item indicates a cost of $600,000, which appears erroneous (i.e., $1,000,000 x 1 ≠ $600,000). Seven Springs and Fox request this apparent error be corrected. Further, Seven Springs and Fox ask that the Regional Board provide details (e.g., number of hours, labor rates, rationale) and justification of the projected $600,000 to $1,000,000 regulatory oversight costs noted in the 5-Year and 25-Year Cost Estimate tables, respectively. The projected regulatory oversight costs appear to be excessive; especially in comparison to the projected labor hours to actually perform and complete the work. The Regional Board projects 12,871 labor hours for performance of field activities and preparation of reports related to Proposed Order Required Actions (i.e., Tasks 1 through 6, and 9). These 12,871 hours equate to a labor cost of $1,476,586. It is unclear why the $600,000 regulatory oversight costs are 41 percent of the labor cost to perform this work (i.e., $600,000 / $1,476,586 = 41%).	See Master Response to Legal Comments, section II. Also, Attachment B, 5-Year Cost Estimate Scenario has been revised to include a $600,000 "$/Unit" cost instead of the $1,000,000 amount previously shown; the $600,000 "lump sum" for "regulatory oversight" costs remains unchanged. The regulatory oversight cost amount is estimated to be approximately 10% of the total "Project Cost". The regulatory oversight cost estimates (approximately 10% of total "Project Cost") are consistent between the 5-Year Cost Estimate Scenario and the 25-Year Cost Estimate Scenario. In other words, there is a range of regulatory oversight cost estimates because the regulatory oversight cost is approximately 10% of total "Project Cost"—which is itself presented as a range of estimated costs.
101	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	46, 47	Paragraph 59 of the Proposed Order provides a summary of "order of magnitude" costs and states, "[m]any of these costs are controllable and may be reduced significantly with aggressive and prompt remediation efforts." However, the cost estimates provided in Attachment B are for investigation and monitoring activities; not "remediation efforts." It is not apparent how accelerated remedial actions could reduce investigative costs associated with Task 1 (Conceptual Site Model), Task 2 (Sampling and Analysis Plan and Quality Assurance Project Plan), Task 3 (Develop, Submit, and Implement Site Investigation Work Plan), Task. 4 (Develop, Submit, and Implement a Monitoring Well Installation Work Plan), Task 5 (Develop, Submit, and Implement a Vapor Intrusion Investigation Work Plan), and Task 6 (Prepare and Submit Human Health and Ecological Risk Assessment). Indeed, under the Proposed Order, it is not clear that accelerated remedial actions are permitted in advance of completing the required investigations.	Comment Noted. Lahontan Water Board staff support identifying and utilizing the most cost-effective methods to achieve remedial objectives, including the use of any accelerated remedial actions completed in the advance of the required investigations (i.e., the Discharger can propose and implement remedial actions to achieve remedial objectives in a more timely fashion). See Response to Comment Nos. 105 (encouraging the use of cost-effective methods) and 100 (findings related to Water Code section 13267). Aggressive remediation, for example, may limit the need for additional investigation related to future remedial actions by cutting years or decades off of monitoring requirements. In addition, the Order is quite clear that interim remedial measures are anticipated and necessary, as explained in the Order section 6 and required by the deadlines in Attachment C, Time Schedule.
102	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	47	The Regional Board asserts, "extensive solvent plume cases have been resolved with high resolution investigation and remediation, reducing high concentration solvent plumes down to MCLs within a span of three to five years."[246] Multiple off-Site sources are responsible for formation of the Regional PCE Contamination, which AECOM estimates is approximately 1.5-miles long, 1-mile wide, and as deep as 240 feet bgs, as noted in Section 2. The timeframe for remediating this contamination depends (1) on the rates at which PCE back	Comment Noted. Lahontan Water Board staff acknowledge that any selected remedial strategy will be based on an updated Conceptual Site Model and Human Health Risk Assessment, which will include evaluation of all available data and identification of potential source areas, and will be submitted, reviewed, and accepted as part of the Interim Remedial Action Plan/Remedial Action Plan process, as required by the Order. Investigation activities to delineate the extent of contamination as

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				diffuses from low permeability zones that have contacted PCE-impacted groundwater, and (2) the Regional Board's ability to locate and institute source control at the properties where PCE continues to leach to groundwater. Seven Springs and Fox believe the likelihood is remote that groundwater throughout the Tahoe Valley South Subbasin can be restored to its beneficial uses within 5 years considering the Regional Board has been unable to determine the off-Site sources causing the Regional PCE Contamination despite more than 30 years of trying to do so. Any attempt to clean up the Regional PCE Contamination will be protracted and/or fail without proper source characterization and removal. The costs of investigating and remediating PCE in groundwater to non-detectable concentrations are indeterminate unless the Regional Board identifies and requires abatement of the off-Site sources that are sustaining the Regional PCE Contamination.	required by the 2017 CAO remain incomplete. See Response to Comment 6 (incomplete delineation). It is difficult to estimate the costs of technical reports, which is why Lahontan Water Board staff presented a potential range in our estimate. See Response to Comment No. 100 (findings related to WC section 13267). To the extent that the Comment suggests that additional sources are contributing to the regional PCE plume, see Response to Comment No. 27 (identification and naming of other dischargers). Regardless of whether additional sources have contributed, the Dischargers are responsible for cleanup and abatement of the extent of their discharge, which has been established, based upon substantial evidence, to extend, without interruption to the regional PCE plume and various receptors. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). In response to the Comment's suggestion that remediation is not possible within 5 years, that remains to be seen. Lahontan Water Board staff have shared case studies of extensive chlorinated solvent plumes in other regions that were remediated down to MCLs in under a decade. Submission of a feasibility study and discussion of remedial options will be the appropriate time to weigh options. The Order notes that the Executive Officer may extend deadlines, as appropriate.
103	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	48	The Regional Board indicates that due to "declining AS/SVE system performance and contamination identified outside of [the AS/SVE] radius of influence, the Dischargers must continue to evaluate other remedial options to enhance removal of the residual contaminant mass and to address ongoing off-Site COC migration in groundwater."[250] The SVE/GASS is not displaying "declining system performance" as characterized by the Regional Board. Contaminant mass removal rates of SVE systems are understood to decrease along a first-order (exponential) decay curve with high initial rates that eventually attain an "asymptote" level.[251] The SVE/GASS has reached this asymptotic stage. The VOC mass removal rate has dropped from approximately 100 grams per day upon start-up in 2010 to presently less than 1 gram per day.[252] In June 2022, Seven Springs initiated optimization of the SVE/GASS[253] with the goal of maximizing the VOC mass removal rate consistent with U.S. EPA guidance.[254]	Comment Noted. Lahontan Water Board staff acknowledge the SVE/GASS system has reached its "asymptotic stage", is being operated to maximize VOC mass removal rates, and that further operation will need to be evaluated considering technical and economic feasibility and remedial objectives. See *CAO Staff Report Section 6.1 Remedial Actions Conducted and Section 6.2 Remedial Action Observations* for discussion of remedial actions. The remedial actions implemented to date have not been successful in achieving remedial objectives. Additional on and off-Site remedial actions are necessary to cleanup soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater. See Response to Comment No. 8 (incomplete remediation).
104	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	48	Seven Springs and Fox concur with the Regional Board that batch groundwater pumping was effective in reducing PCE concentrations in groundwater. Batch pumping activities were stopped based on the Lahontan Regional Board's concerns that batch pumping activities could affect the results of off-Site groundwater investigation activities. Seven Springs and Fox agree that batch pumping and other remedial technologies at the Site should continue to be evaluated, as appropriate.	We agree. Batch pumping and other remedial technologies should continue to be evaluated, as appropriate, to achieve remedial objectives. Lahontan Water Board staff did not concur with conducting batch pumping events prior to or during the collection of discrete depth groundwater samples within the transect located within Lake Tahoe Boulevard (i.e., conducting groundwater sampling in an area directly adjacent to the monitoring wells being utilized for batch pumping). Lahontan Water Board staff expressed concerns about the optics of conducting batch pumping at the time of investigation and that the groundwater sampling in Lake Tahoe Boulevard may not be representative of actual site conditions and potential threats due to the batch pumping events being performed. Although Lahontan Water Board staff never issued a formal directive to suspend batch pumping, the Dischargers elected to not conduct any additional batch pumping events following completion of the site investigation activities. Compliance with the Order will result in

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					an evaluation of possible remediation strategies that may include batch pumping.
105	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	48	Seven Springs and Fox also agree with the Regional Board that an in-situ chemical oxidation (ISCO) pilot study performed in November 2019 indicates that ISCO significantly reduced PCE concentrations remaining in the capillary fringe and shallow groundwater, and ISCO is a potential remediation technology that can reduce PCE mass in shallow and middle zone groundwater."[255]	Comment Noted. Lahontan Water Board staff support identifying and utilizing the most cost-effective methods to achieve remedial objectives. Lahontan Water Board staff acknowledge ISCO as a potential remediation technology that can reduce PCE mass in shallow and middle zone groundwater to achieve remedial objectives. See Response to Comment No. 102 (case studies using effective remediation strategies in complex and extensive chlorinated solvent plumes).
106	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	48, 49	The Proposed Order states that the Responsible Parties "[m]ust continue to evaluate other options to enhance removal of the residual contaminant mass and to address ongoing COC migration in groundwater."[256] On 12 August 2021, Seven Springs submitted Remediation Evaluation Workplan for Chlorinated Volatile Organic Compounds in Middle Zone Groundwater ("MZA Work Plan") to the Regional Board.[257] The MZA Work Plan was submitted to perform a pilot study to evaluate remedial technology for VOC-impacted groundwater within the middle zone or MZA beneath the LTLW. On 16 November 2021 and 1 December 2021, the Regional Board issued correspondence halting the pilot study that would have further evaluated remedial technologies to address PCE-impacted groundwater.[258] On 2 December 2021, Morrison Foerster submitted correspondence to the Regional Board regarding the correspondence halting the proposed pilot study.[259] The Morrison Foerster correspondence stated (1) "[f]irst, with its actions, the Regional Board has unnecessarily halted ongoing cleanup and remediation efforts underway on the Site, to the detriment of the residents of the city of South Lake Tahoe;" and (2) "[t]he Middle Zone Remediation Evaluation Workplan was just another means by which Seven Springs sought to test new technologies for further remediation of the Site, yet the Regional Board, by its December 1 Updated Notice, needlessly stopped such important work from proceeding." In January 2022, Seven Springs requested a meeting with the Regional Board's Executive Officer, Michael Plaziak, to discuss aspects of the LTLW and the proposed MZA pilot study for middle zone groundwater. However, counsel for the State Water Board denied the request to meet with the Executive Officer due to a prohibition on "ex parte" communications while the Proposed Order was pending; as such, further evaluation of additional on-Site remediation was halted.[260]	We disagree. Lahontan Water Board staff provided the November 16, 2021 *Notice of Deficient Workplan* to the Dischargers following review of the MZA Work Plan. In the November 16, 2021 *Notice of Deficient Workplan*, Lahontan Water Board staff acknowledged the potential benefit of performing the pilot test as described but identified deficiencies in the MZA Work Plan relative to (1) the current language contained in the draft General Order (Waste Discharge Requirements for Groundwater Remediation Projects) for in-situ remediation pilot testing projects within the Lahontan Region and (2) 2017 CAO intent. Lahontan Water Board staff noted a comprehensive workplan was needed to fulfill draft General Order requirements and that the proposed monitoring program would not provide sufficient data to evaluate the effectiveness and potential applicability of the selected remedial option. Lahontan Water Board staff also noted the area of concern identified did not correlate to extent of contamination originating from the Site and the MZA Work Plan did not acknowledge or discuss any areas where off-Site contaminant migration has occurred, including data collected during the SCAP Regional PCE Plume Investigation. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the discharge. See *CAO Staff Report Section 6.1 Remedial Actions Conducted and Section 6.2 Remedial Action Observations* for discussion of cleanup actions and Response to Comment No 8 (incomplete remediation). Additionally, Lahontan Water Board staff were participating in regularly scheduled technical planning and progress meetings with the Dischargers' consultants in early 2022, and have repeatedly engaged with Dischargers' consultants to discuss various potential remediation technologies. The fact that the Executive Officer was not present at any particular meeting is not a justification for the failure to evaluate and implement remedial technologies.
107	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	50	Most of the work specified in the Proposed Order pertains to investigation and remediation of the Regional PCE Contamination for which the release at the LTLW is not the cause. The Proposed Order is not needed to complete cleanup of the LTLW, which already is being successfully remediated.	We disagree. The Dischargers' assertion concerning liability or "de minimis" contributions are not consistent with the available data. See Response to Comment Nos. 6 (incomplete delineation), 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), and 27 (identification and naming of other potential dischargers which have no bearing on Dischargers' liability).
108	PES/EKI	September 19, 2022 Subject: Comments on	50	Apart from these concerns, much of the work sought by the Proposed Order is inappropriate or improper.	We disagree. See Response to Comment No. 107 (Discharger's liability).

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		Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order			
109	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	50, 51	Task 1 of the Proposed Order requires Seven Springs and Fox to develop a CSM. However, development of the CSM is not a stand-alone effort as reflected in the Proposed Order. Both DTSC and U.S. EPA indicate a CSM is part of the data quality objective (DQO) process,[261] which is a seven-step iterative approach to preparing the field sampling plan (FSP) for environmental data collection efforts. The first six steps of the DQO process define the purpose of the data collection effort, clarify what the data should represent to satisfy this purpose, and specify the performance requirements for the quality of information to be obtained from the data. These outputs are then used in the seventh and final step of the DQO process to develop a data collection effort that meets performance criteria and other design requirements and constraints.[262] In 2017, Seven Springs and Fox included a CSM in initial versions of the Groundwater Investigation Work Plan that were submitted to the Regional Board to comply with the 2017 CAO.[263] The CSM in these work plans was described as follows: Results of sampling at the Site, which includes testing beneath the former LTLW tenant space, indicate that VOC-impacted soil and groundwater are limited primarily to the parking lot north of the existing Site building. Our preliminary CSM is that a surface release or releases of PCE occurred at the Site when a delivery truck leaked PCE in the parking lot. The surface release migrated downward and resulted in VOC-impacted unsaturated or vadose zone soil. The resulting vadose zone contamination affected shallow zone groundwater at the Site, but has not significantly impacted middle zone groundwater or off-Site groundwater conditions. The SVE/GASS is successfully remediating on-Site contamination and is preventing its migration from the Site. PCE contamination in shallow and deeper groundwater off-Site is attributable to releases at properties other than LTLW. The CSM is supported by information and data collected to date, including data compiled from investigative and remedial activities performed on and off the Site by the Working Parties and separate entities; and various findings made by the Water Board, STPUD, and DRI.[264] Stakeholders criticized the above CSM and asserted it did not incorporate "all existing data relevant to understanding the fate and transport of PCE and related compounds throughout the South Y area."[265] Seven Springs and Fox, referred to as the "Working Parties" at that time, explained that it was not worthwhile, or even logistically possible, to create a CSM to define contamination throughout the South Y Area in an initial work plan.[266] The CSM was intended to assist with identifying and prioritizing data gaps associated with potential contamination originating from the LTLW. Regardless, Seven Springs and Fox agreed to remove the CSM from the work plan so	Comment Noted. The Dischargers' 2017 CSM does not appropriately consider all of the currently available information and needs to be updated. See Response to Comment No. 6 (CSM needs updating).

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				sampling activities required by the 2017 CAO could begin.[267] Groundwater VOC data and information regarding off-Site sources obtained after the work plan was approved by the Regional Board in 2018 confirm the validity of Seven Springs/Fox's CSM. Task 1 should be omitted because Seven Springs and Fox have developed an accurate CSM that could be included as an element of the FSP, which presumably is equivalent to the Site Investigation Work Plan (SIWP) that the Proposed Order requires in Task 3.	
110	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	51	Task 1 also should be removed from the Proposed Order because the Regional Board insists Seven Springs and Fox incorporate environmental release and transport mechanisms into the CSM that are controverted by available data and information.	We disagree. See Response to Comment Nos. 6. (CSM needs updating), 22 (Site is irrefutably contributing mass to regional PCE plume; regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) and 57 (Discharger's own contaminant migration calculations; contaminant loading and off-Site migration). Task 1 requirements are appropriate and in line with available guidance to develop a CSM to identify and prioritize data gaps for additional investigation to support remedial option recommendations. Task 1 requires the Dischargers' to develop and submit a CSM based on currently available information. The Order requires the Dischargers to revise the CSM as appropriate, including as new information and data becomes available.
111	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	52	The Regional Board wants to dismiss the presence of hydrostratigraphic units within the Tahoe Valley South Subbasin despite their identification by Kennedy/Jenks Consultants[268] and other scientists that have studied the matter.[269] The Regional Board claims there is a hydraulic connection between shallow and middle zone groundwater that "refute[s] a fundamental basis of the Dischargers' CSM, that a silt layer is purportedly preventing downward vertical migration of PCE and other COCs in groundwater."[270] In making this claim, the Regional Board disregards investigative findings that show silt and other fine-grained layers inhibit (i.e., slow or retard) vertical groundwater movement in the Tahoe Valley South Subbasin. A study of stormwater infiltration conducted for the Tahoe Regional Planning Agency (TRPA) determined "[t]here is particularly high confidence that little groundwater recharge from stormwater will occur in locations where continuous confining layers are present that physically separate the shallow groundwater table from deeper aquifers, as in South Lake Tahoe."[271]	We disagree. Lahontan Water Board staff acknowledge the role fine-grained lithologic units play in contaminant transport and the localized areas of fine-grained lithologic units, including lacustrine deposits, which have been reported within the greater South Y area and at the Site. However, the localized areas with fine grained lithologic units have not prevented the downward vertical migration of contaminants as evidenced by the lateral and vertical extent of the regional PCE plume. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). Further, the Dischargers own investigations have demonstrated the hydraulic connection between "shallow" and "middle" zones and that the "fine-grained" layers are not acting as significant barriers to contaminant transport. During November 2019 in-situ chemical oxidation pilot testing and verification monitoring activities, contaminant concentration reductions and visual monitoring results from "middle" zone monitoring well LW-MW-1D confirmed the presence of chemical oxidant within the "middle" zone. The magnitude of contaminant reduction and oxidant presence in a "middle" zone well are significant observations because no chemical oxidant was injected into "middle" zone wells, only "shallow" wells, but purple color, an indicator of oxidant presence, was reported in LW-MW-1D throughout the entire visual monitoring period which demonstrated hydraulic connection between the "shallow" and "middle" zones and that the "fine-grained" layers are not acting as an effective barrier to contaminant transport in the vicinity of the Site. See *CAO Staff Report Section 4.2.2 Dischargers' Chemical Oxidation Pilot Test and Observations* for additional discussion of the pilot testing activities and observations. See also Response to Comment No. 112 ("fine-grained" layers are not continuous across the Site).

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112	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	52, 53	Further, Seven Springs and Fox have never stated that a slit layer is "preventing downward vertical migration of PCE" or that the silt layer was an impermeable barrier, as the Regional Board alleges.[272] Instead, Seven Springs and Fox have noted that the presence of fine-grained layers at and in the vicinity of the Site retards vertical groundwater flow and contaminant movement from shallow to middle zone groundwater. Lithologic data collected from the Site indicate the presence of a silt layer beginning at depths of roughly 30 to 35 feet bgs.[273] Large differences in hydraulic heads between paired groundwater monitoring wells[274] confirms fine-grained layers inhibits vertical groundwater flow.	Comment Noted. This comment focuses on subtle differences in language (i.e. prevents versus retards) that both indicate that the fine grained layers at the site" inhibits vertical groundwater flow" at the Site. However, groundwater quality data and direct observations support at least some hydraulic connection between the "shallow" and "middle" groundwater zones at the Site. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) Lahontan Water Board staff acknowledge that fine grained lithologic units in the Site vicinity could inhibit vertical groundwater flow. However, Lahontan Water Board staff observe the silt layer described in the comment is not functioning as an effective barrier to prevent off-Site contaminant transport and is not continuous across the Site. In the June 4, 2009 *Interim Remedial Action Workplan for SZA Groundwater Investigation, SZA Groundwater Monitoring, Interim Remedial Action Vadose Zone Soil and Shallow Groundwater Cleanup*, E2C Remediation did not report the "thin layer (one to 2.5 feet in thickness), or thin layers of silt alternating with sands (dependent upon location)" used to define the "shallow zone aquifer [SZA]" in 3 out of the 8 borings advanced. E2CR noted "the silt layer that defines the bottom of the SZA is laterally continuous in varying thickness across the western portion of the Site; however, it is laterally discontinuous along the eastern portion of the Site". See also Response to Comment Nos. 6 (CSM needs updating) and 111 (chemical oxidation pilot test observations relative to "fine-grained" layers acting as an effective contaminant transport barrier)
113	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	53	Task 1.c of the Proposed Order compels development of a CSM based on Regional Board opinions that are unsupported or contrary to available data. The Proposed Order should be revised to remove Task 1 entirely because (1) the CSM will be included in the SIWP required by Task 3 of the Proposed Order, and (2) Seven Springs and Fox cannot lawfully adopt a CSM that is unsupported or contrary to available data as Task 1.c directs the parties to do.[275]	We disagree. See Response Nos. 6 (CSM needs updating and 110 (CSM update requirement is appropriate). Task 1.c requires the current CSM be updated and to acknowledge available information, specifically data collected following 2017 CAO issuance. Lahontan Water Board staff are not opposed to receiving combined reports, as long as the respective tasks are completed by their deadlines.
114	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	53	Task 2 of the Proposed Order is confusing due to the terminology used to describe the work to be performed. The task specifies preparation of a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP). Typically, the QAPP is a component of the SAP or work plan, which also includes the FSP.[276] The Proposed Order does not require preparation of an FSP but does direct Seven Springs and Fox to prepare a SIWP under Task 3. The Regional Board should clarify if the SIWP is equivalent to an FSP and explain how the SAP differs from the SIWP, if at all.	CAO Revision. We agree to revise the Order. Lahontan Water Board staff acknowledge the use of conflicting language in the Order relative to available guidance for SIWP, SAP, FSP, and QAPP. The Order has been revised to remove requirements for submittal of a stand-alone SAP and QAPP. Typical components of SAP and QAPP documents are now required to be included in the relevant work plan submittals (i.e., SIWP, VIIWP, and MWIWP)
115	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	53, 54	More importantly, the Regional Board has previously approved a work plan with a QAPP that Seven Springs and Fox submitted to fulfill requirements of the 2017 CAO.[277] This work plan[278] describes the "procedural and analytical requirements for sampling soil, soil gas, surface water (if applicable), subsurface utility backfill (e.g., stormwater and sanitary sewer conveyance system backfill) and groundwater"[279] that the Regional Board requires in preparation of the SAP. Task 2 should be revised to provide that the QAPP previously approved by the Regional Board under the 2017 CAO meets the QAPP requirements of the Proposed Order.	CAO Revision. We agree and propose revisions to Task 2. The Task 2 requirement for a standalone QAPP has been removed. Typical components of QAPP documents are now required to be included in the relevant work plan submittals (i.e., SIWP, VIIWP, and MWIWP). See Response to Comment No. 114 (SAP and QAPP requirement revisions). Lahontan Water Board staff acknowledge the QAPP previously provided for the 2017 CAO investigation can be resubmitted to fulfill Order requirements. However, proper implementation of the submitted QAPP is also important. Lahontan Water Board staff note previous instances in which the Discharger's quality assurance

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					activities described in the work plan/QAPP have not always been implemented in accordance to the submitted QAPP (e.g., monitoring reports do not identify and describe laboratory flagged data).
116	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	54, 55	The Proposed Order requires development, submittal, and implementation of one or more SIWP(s). Task 3 of the Proposed Order states that a SIWP is to update on-Site and off-Site information with the data required to define the lateral and vertical extents of the alleged discharge to soil, soil gas, and groundwater to support evaluation of potential threats to human health, and sensitive (e.g., schools, day care facilities, and nursing homes) and ecological receptors. Among other requirements, the SIWP must fully assess the extent of discharges along or to: · Preferential pathways (e.g., stormwater conveyance system including Tucker Basin and other stormwater retention/infiltration basins in the system, sanitary sewer, other subsurface utilities). · Vertical conduits (e.g., water supply wells and monitoring wells). · Surface water (e.g., stormwater conveyance system infiltration/detention basins). The assessment results are to be used to support development and submittal of (1) Monitoring Well Installation Work Plan, (2) Vapor Intrusion Investigation Work Plan, (3) HHRA and Ecological Risk Assessment, and (4) recommendations for interim remedial actions, including supply of replacement water. The Proposed Order defines "fully assess" to mean Seven Springs and Fox: . . . must perform step-out sampling, both laterally and vertically, until soil and soil vapor concentrations are defined to the applicable ESLs (i.e., direct exposure, vapor intrusion, terrestrial habitat, leaching to groundwater) and groundwater concentrations of COCs are defined to 0.5 µg/L (i.e., the reporting limit for each COC; the method detection limit will be utilized as the practical limitation for defining natural background concentrations). If investigation data are being collected to support the Human Health and Ecological Risk Assessment, applicable health and ecological-based screening levels shall be considered when developing data quality objectives for the SIWP.[280] As discussed in Section 4, the NRC advises against over-delineation of the plume boundaries at the expense of source characterization efforts. As a technical matter, Seven Springs and Fox are unable to characterize PCE in groundwater beneath Lake Tahoe Boulevard to 0.5 µg/L because PCE at or near the MCL of 5 µg/L at that location abuts Regional PCE Contamination originating north of Lake Tahoe Boulevard, most likely at the former Big O Tires facility based on available groundwater data. As explained in Sections 9.5 and 9.6, defining PCE concentrations in soil and soil gas to applicable Environmental Screening Levels (ESLs) is not indicated given impacts to these media from the LTLW discharge have been fully characterized, and an HHRA and an ecological risk assessment for the LTLW is not warranted.	CAO Revision. Lahontan Water Board staff acknowledge the guidance regarding the over-delineation of plume boundaries at the expense of source characterization efforts and encourage the identification and utilization of the most cost-effective methods for detecting contamination and cleaning up or abating its effects. Water Code section 13360 prohibits the Regional Water Boards from specifying, but not suggesting, methods that a discharger may use to achieve compliance with requirements or orders. It is the responsibility of the Dischargers to propose methods for Lahontan Water Board staff review and concurrence to achieve compliance with requirements or orders. Lahontan Water Board staff also acknowledge that the Dischargers have confirmed that there is no separation between the Site and the regional PCE plume in this comment. Dissolved phase contamination in groundwater does not abut, rather it commingles. The Order is needed because the Dischargers have not delineated, or evaluated remedial actions for, the entire extent of discharge. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the discharge. Lahontan Water Board staff have consistently expressed concerns about the investigation strategy and schedule being used to accomplish 2017 CAO requirements (i.e., delineate the lateral and vertical extent of contamination originating from the Site). See Response to Comment Nos. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 6 (incomplete delineation), and19 (concerns with investigation strategy). As previously noted, the reconnaissance level delineation of the lateral and vertical extents of the regional PCE plume has already been largely completed by AECOM under the SCAP contract. See Response to Comment No. 93 (plume delineation). Development of an updated Conceptual Site Model and an initial Human Health Risk Assessment for the entire extent of discharge, as required by the Order, is appropriate and consistent with State Water Board Resolution 92-49. See Response to Comment No. 8 (incomplete remediation).
117	PES/EKI	September 19, 2022 Subject: Comments on	55	SIWP requirements are based on the Regional Board's incorrect assumption that the Regional PCE Contamination originated from the LTLW. For the foregoing reasons herein, the evidence does not	We disagree. Requirements to evaluate potential human health threats at locations affected and threatened by the discharge and to cleanup and abate its

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		Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order		indicate the Regional PCE Contamination was caused by PCE as DNAPL or in dissolved form that migrated off the LTLW in groundwater or along utility lines or other subsurface features that could act as preferential pathways for contaminant transport. As a result, the Proposed Order should not require an SIWP to address the Regional PCE Contamination.	effects are warranted. See Response to Comments Nos. 6 (incomplete delineation and need for investigation), 8 (incomplete remediation and need for remedial action), 16 (incomplete preferential pathway investigation; discharge to stormwater conveyance system/Tucker Basin), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 60 (DNAPL was present at Site) and 61 (evidence of potential contaminant transport along preferential pathways).
118	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	55, 56	The Proposed Order does not mention that the Regional Board has retained AECOM to investigate the vapor intrusion (VI) exposure pathway or explain how the VI assessment required by Task 3 is not duplicative of AECOM's investigation. According to AECOM's Soil Gas Investigation Work Plan: AECOM will review the data [gathered] and perform a Tier I risk evaluation for potential human health risk associated with the subsurface-to-indoor-air/VI pathway," including: · Comparing the soil gas volatile organic compound (VOC) results to ESLs; · Evaluating the shallow and deep soil gas results to assess the strength of the groundwater vapor source (deep samples) and the degree of soil gas attenuation between the groundwater vapor source and the shallow soil gas samples; and · Providing recommendations as to whether further investigation, such as collecting additional soil gas samples or indoor air/sub-slab samples, is warranted.[281] Regional Board communications indicate that the investigation outlined in the Soil Gas Investigation Work Plan and its Addendum[282] was scheduled to begin the "the first week of July."[283] On 25 July 2022, Morrison Foerster, on behalf of Seven Springs, sent a letter to the Regional Board that stated: Seven Springs requests the laboratory data from AECOM's soil gas investigation as soon as it becomes available. Despite the investigation's overlap with the comment period, the findings from the soil gas investigation will be critical to Seven Springs' evaluation of the Proposed LTLW, Big O Tires, and Norma's Cleaners CAOs. Seven Springs and Fox cannot provide a complete assessment of, for example, Paragraphs 36, 37, and 65 and Required Action No. 5 of the Proposed Order without access to the data collected pursuant to the Regional Board's soil gas investigation of the regional plume.[284] On 28 July 2022, the Regional Board indicated that the data from the soil gas investigation would be made available to interested parties as soon as full data packages are available.[285] It is imperative that the soil gas investigation results be made available as soon as possible to aid in understanding soil gas conditions at the locations sampled and to avoid repeating work that the Regional Board has performed. Without the soil gas investigation results, Seven Springs and Fox cannot determine the VI scope of work, if any, to include in the SIWP pertaining to the discharge at the LTLW.	We agree. The Dischargers should not duplicate AECOM's investigation in complying with the Order's requirements to complete the delineation of the discharge. Lahontan Water Board staff provided AECOM's draft passive soil gas investigation results on November 18, 2022 to the Dischargers and distributed the final report on January 12, 2023 after it was finalized by AECOM and submitted to the State Water Board. See *CAO Staff Report Section 4.2.4 State Water Board's Regional PCE Plume Investigation* for discussion of the SCAP grant and a summary of the remaining and performed SCAP contract activities, including the referenced soil vapor investigation to assess the potential threat to human health the regional PCE plume poses via the vapor intrusion to indoor air pathway.

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119	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	56	The Proposed Order requests a schedule for implementation of the SIWP and indicates that "[s]tep-out sampling shall proceed without significant interruption."[286] The Proposed Order further states that "[a]ny failure to continue conducting sampling for a period exceeding ten business days is a significant interruption."[287] The proposed schedule is unreasonable and is based on the mistaken premise that the Regional PCE Contamination originated from the LTLW. In the Staff Report included with the Proposed Order, the Regional Board discusses briefly the two orders issued to the former Big O Tires Site and the Norma's Cleaners site as well as the Water Code § 13267 Investigative Orders sent to 223 parties. Seven Springs and Fox should not be held responsible for investigation of PCE impacts that are due to releases at other properties. Implementation of a continuous investigation or investigations downgradient of potential sources of PCE that have not been thoroughly investigated would surely result in just that.	We disagree. The requirement specifying the definition of "significant interruption" is due to Dischargers' abject failure to comply with the 2017 CAO requirement to delineate the vertical and lateral extent of the discharge from the Site. See Response to Comment No. 6 (incomplete delineation). There is a regional plume which begins at the Site and continues, uninterrupted to various receptors which requires cleanup and abatement, and to the extent that other sources have contributed, please see Response to Comment No. 27 (joint and several liability). See Response to Comment Nos. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other dischargers), 32 (ongoing enforcement at Big O Tires and Former Norma's Cleaners), and 19 (concerns with investigation strategy). In the event Dischargers cannot comply with the sampling protocols due to weather or access or Acts of God, the Order provides an avenue to request extensions on deadlines.
120	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	56	Task 4 of the Proposed Order requires Seven Springs and Fox to prepare and implement a Monitoring Well Installation Work Plan (MWIWP) that evaluates the behavior of the Regional PCE Contamination.[288] Inclusion of this task in the Proposed Order is inappropriate and should be omitted because the Regional PCE Contamination is associated with releases at off-Site properties and not the LTLW, as explained in Sections 2 and 3.	We disagree. Inclusion of the Task 4 requirements is appropriate. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the discharge. See Response to Comment No. 6 (incomplete delineation and need for investigation], 8 (need for remediation) and 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors)
121	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	57	The Regional Board's 5-Year and 25-Year Cost Estimate scenarios assume 69 monitoring wells will comprise the monitoring well network required by Task 4. The network would consist of the existing 18 on/off-Site wells that are currently sampled pursuant to the 2017 CAO, 9 sentry wells that were constructed as part of the SCAP Regional PCE Plume Investigation, and 42 new perimeter and sentry wells that the Regional Board contemplates would be installed under the Proposed Order. The Regional Board does not explain why it believes a monitoring well network on the order of 69 wells is indicated. The seven-step DQO process discussed in Section 9.1 should be followed to develop the MWIWP, which begins with the identification of monitoring objectives that are directly related to the expected outcome of the site activity.[289] For example, if the Regional Board does not pursue investigation and remediation of off-Site sources in a timely fashion, then wellhead treatment is the viable remedy for continued use of groundwater as a potable supply. Given the mature nature of the Regional PCE Contamination, wellhead treatment is not sensitive to minor concentration changes at the peripheries of the contamination. Consequently, the extensive monitoring well network assumed by the Regional Board would not be needed. U.S. EPA and the U.S. Army Corps of Engineers (USACE) state "[d]esigning an effective long-term groundwater monitoring program involves locating monitoring points and developing a site-specific strategy for groundwater sampling and analysis in order to maximize the amount of information obtained to effectively address the temporal and spatial objectives of monitoring, while minimizing incremental costs."[290]	Comment Noted. Lahontan Water Board staff prepared the cost estimates to demonstrate that it has considered the burdens, "including costs," consistent with Water Code section 13267 requirements. See Master Response to Legal Comments. The cost estimates are intended to be conservative. The cost estimates prepared by Lahontan Water Board staff do not necessarily represent the scope of work to be implemented by the Dischargers. Task 4 of the Order allows the Dischargers to propose the monitoring well network and program that is appropriate to 1) evaluate migration of COC-impacted groundwater, 2) evaluate regional PCE plume behavior at the plume boundaries, 3) evaluate COC trends in groundwater within the regional PCE plume, 4) evaluate COC trends within the estimated capture zones of water supply wells, 5) provide early detection capabilities (sentry wells or other equivalent mechanism) for impacted and threatened water supply wells, and 6) aid in evaluating interim and final remedial actions are appropriate for the Site. See also Response to Comment No. 27 (identification and naming of other potential sources).

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122	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	57, 58	While the Regional Board's cost estimates do reflect a decrease in the sampling frequency from quarterly to semi-annually after a certain length of time, the Proposed Order should reflect that a well-designed monitoring program will evolve in other ways. Approaches to the design, evaluation, and optimization of effective groundwater monitoring programs must acknowledge and account for the dynamic nature of groundwater systems.[291] Both the temporal and spatial characteristics of a groundwater monitoring program must be assessed periodically. For example, there may be some cases where continuing to sample a monitoring well serves no useful purpose. In a study of groundwater monitoring optimization techniques for U.S. EPA, Parsons Corporation (Parsons) states a "monitoring well having a history of contaminant concentrations below detection limits may be providing little or no useful information."[292] The Proposed Order should be revised to make clear that the MWIWP will establish criteria for revising the monitoring program as it evolves.	Comment Noted. See Response to Comment 121 (cost estimates are intended to be conservative). Lahontan Water Board staff acknowledge that monitoring programs should be evaluated and updated/revised over time and Dischargers' compliance with Task 4 may result in a distinctly different monitoring program.
123	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	58	Like most tasks prescribed in the Proposed Order, the MWIWP cannot be prepared in accordance with the schedule presented in Attachment C. The Proposed Order requires the MWIWP to be submitted to the Regional Board within two months after the Proposed Order has been adopted. Yet, the Proposed Order requires the MWIWP to "[f]ully evaluate available groundwater and lithological data generated from the SIWP(s)."[293] Investigations described in the SIWP would not be finished within two months of Order adoption because Attachment C states Site Investigations shall be completed within six months of Order adoption. Further, as discussed in Section 9.8, the Order deadline for completing Site Investigations may not be achievable depending on the scope of work to be performed, the time required for the Regional Board to review and approve the SIWP(s), the ability to secure site access and necessary permits, and weather conditions at the time of planned field work.	CAO Revision. Order Attachment C, Time Schedule was revised to require submittal of the MWIWP within 11 months of Order adoption (i.e., following completion of Order 2 site investigation activities).
124	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	58	The Proposed Order requires development, submittal, and implementation of a Vapor Intrusion Investigation Work Plan. Paragraphs 36 and 37 of the Proposed Order indicate that soil gas samples have been collected from on-Site SVE wells since 2010 and PCE concentrations in soil gas exceed the ESL developed by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) for commercial use of 67 micrograms per cubic meter ($\mu g/m^3$).[294] The Proposed Order further states that additional investigations are required delineate the extent of PCE in soil gas originating at the Site as well as from off-Site areas such as Tucker Basin. A review of the on-Site soil gas sampling conducted over the last four quarters (Second Quarter 2021 through First Quarter 2022) indicates that the soil vapor probes with PCE concentrations greater than the commercial ESL are located in the parking lot north of the building and are bound by soil vapor probes with concentrations less than the commercial ESL.[295] The lateral extent of PCE-impacted soil gas is defined on the LTLW and further of-Site investigation is not required.	We disagree. Requiring the Dischargers to define the lateral extent of PCE impacted soil gas associated with the regional PCE plume is consistent with State Water Board Resolution 92-49 to ensure investigation and cleanup and abatement to any location affected by the discharge or threatened discharge. Resolution 92-49 requires cleanup to background and the associated regulations make clear that cleanup and abatement applies to all media. Available data shows the Site is contributing mass to the regional PCE plume and that the regional PCE plume poses a potential threat to human health via the vapor intrusion to indoor air pathway (i.e., groundwater and soil gas concentrations above the vapor intrusion to indoor air ESLs) above areas with PCE contamination in shallow groundwater. Lahontan Water Board staff acknowledge the on-Site remediation performed from 2010 to present and the Second Quarter 2021 through the First Quarter 2022 on-Site PCE concentrations in soil gas which are below the commercial ESL for vapor intrusion to indoor air. Lahontan Water Board staff note multiple vapor probes which previously contained PCE concentrations above ESLs were not able to be sampled due to a variety of reasons (i.e., vehicles parked over well, frozen tubing, plugged tubing, etc.). However, the extent of off-Site PCE concentrations in soil gas above the vapor intrusion to indoor air

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					ESL and associated potential threat to human health remain undefined. During AECOM's July 2022 soil gas investigation, PCE concentrations above the vapor intrusion to indoor air ESL were detected in areas which currently contain the highest PCE concentrations in shallow groundwater and along the stormwater conveyance system, where unauthorized discharges of PCE from the Site were indicated from past passive soil gas sampling. Lahontan Water Board staff also acknowledge the existing SVE/AS remediation system is currently being operated to mitigate any potential threats to human health via the vapor intrusion to indoor air pathway and that the remedial actions conducted from 2010 to present have been successful in reducing soil gas concentrations and the related potential threat to human health. The indoor air sampling investigations conducted in 2015 did not indicate COC concentrations above applicable ESLs when the SVE/AS remediation system was operating. However, (1) additional evaluation of temporal variability when the SVE/AS system is operating is still needed and (2) evaluation of potential human health threat following SVE/AS system shutdown will also be necessary to ensure long term protection of public health.
125	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	59	In December 2015, indoor air sampling was conducted at LTLW tenant spaces at 1022, 1024, and 1026 Lake Tahoe Boulevard and 1032 Emerald Bay Road.[296] The indoor air sampling was conducted on a voluntary basis by Seven Springs to assess concentrations of VOCs in indoor air and ensure no unacceptable conditions are present. PCE in the samples ranged from not being measured above the laboratory analytical method reporting limit of 0.0678 µg/m^3 to a maximum detected concentration of 0.514 µg/m3. These concentrations are less than the indoor air ESL of 2 µg/m3 for commercial use[297] and confirm conditions are acceptable within tenant spaces at the LTLW. In 2022, Seven Springs submitted a Revised Indoor Air Sampling Work Plan to conduct additional indoor air sampling at the Site on a voluntary basis.[298] Additional indoor air sampling will be conducted in warm months to evaluate temporal variability.	Comment Noted. Lahontan Water Board staff acknowledge that the existing SVE/AS remediation system is currently mitigating any potential threats to human health via the vapor intrusion to indoor air pathway and that the indoor air sampling investigations conducted in 2015 did not indicate COC concentrations above applicable ESLs when the SVE/AS remediation system was operating. Additional evaluation of temporal variability when the SVE/AS system is operating is still needed. Evaluation of potential human health threats following SVE/AS system shutdown will also be needed. See Response to Comment No. 124 (need for additional vapor intrusion assessment). Order 6 *Prepare and Submit Human Health and Ecological Risk Assessments* requires evaluation of potential risk COCs pose to the vapor intrusion to indoor air pathway for soil vapor and groundwater. Order 7.a. *Conduct Remedial Action, Current Corrective Actions* requires the Dischargers to operate the existing AS/SVE system at the Site until alternate and/or additional remedial or mitigation measures are implemented or otherwise accepted.
126	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	59	In 2001, PCE was measured at 720 µg/L in shallow zone groundwater sample collected from borehole B-2 completed on the Big O Tires site.[299] In 2020, an investigation of the Big O Tires site determined storm drain pipelines on the property discharged to Tucker Basin.[300] Passive soil gas sample PSG-1 was placed upgradient of borehole B-2 at a drop inlet to the storm drain pipelines. A PCE mass of 510 nanograms was measured in PSG-1. The groundwater and soil gas data indicate potential PCE transport and release to Tucker Basin.[301] The Regional Board agrees PCE from the Big O Tires site was discharged to Tucker Basin.[302] As a consequence, the requirement to investigate Tucker Basin as well as delineate the lateral extent of PCE-impacted soil gas should be directed to the responsible parties of the former Big O Tires site.	We disagree. Available information indicates contaminated stormwater was discharged by both the Site and the Big O Tires site to the City of South Lake Tahoe's stormwater conveyance system (i.e., Tucker Basin). Lahontan Water Board staff considers both parties to be responsible for further investigation and potential remediation within Tucker Basin. See Response to Comment No. 27 (identification and naming of other Dischargers). The preferential pathway investigations at both sites remain incomplete. See Response to Comment Nos. 16 (discharge to stormwater conveyance system/Tucker Basin; incomplete preferential pathway investigations at the Site and Big O Tires), 61 (potential contaminant transport along preferential pathways).18 (investigation, enforcement and draft CAO at Big O Tires), 32 (ongoing enforcement actions at Big O Tires), and 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).

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127	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	59	The lateral extent of PCE-impacted soil gas is defined on the LTLW and further off-Site investigation is not required. Therefore, development, submittal, and implementation of a Vapor Intrusion Investigation Work Plan is not appropriate. VI impacts that are related to other sources of PCE should be assessed by the appropriate responsible parties. The origin of the PCE in groundwater resulting in potential VI impacts should be determined based on investigations of the potential source properties and off-Site investigations to determine the lateral and vertical extents of the PCE.	We disagree. The Dischargers have not completed the lateral and vertical delineation or evaluated potential threats from the entire extent of discharge originating from the Site as required in the 2017 CAO. See Response to Comment Nos. 124 (need for additional vapor intrusion assessment), 6 (incomplete delineation), 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors) and 27 (identification and naming of other potential sources).
128	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	60	Task 6 should be excluded from the Proposed Order because neither a human health screening evaluation nor a baseline risk assessment is required for the LTLW. In 2009, the Regional Board determined that the Site should be remediated.[306] In 2013, the Regional Board approved soil and groundwater cleanup goals for the LTLW and use of SVE/GASS to attain those goals.[307] After commencing SVE/GASS, PCE has been measured in soil at a maximum concentration of 0.106 mg/kg,[308] which is less than the LTLW soil cleanup goal of 0.37 mg/kg.[309]	We disagree. See Response to Comment No. 9 (prior statements based upon incomplete data set). Inclusion of Task 6 in the Order is appropriate and a necessary component of the site investigation process to ensure potential threats to human health and environment are properly identified and evaluated, and appropriate remedial action recommendations developed. The Dischargers' have not performed a human health and ecological risk assessment for the entire extent of the discharge. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the entire extent of discharge originating from the Site. See Response to Comment No. 6 (incomplete delineation). The remedial actions implemented to date have not been successful in achieving remedial objectives. See Response to Comment No. 8 (incomplete remediation). Additional on and off-Site remedial actions are necessary to cleanup soil, soil vapor, and groundwater contamination, control off-Site contaminant migration, and restore the MUN beneficial use of groundwater. See *CAO Staff Report Section 6.1 Remedial Actions Conducted and Section 6.2 Remedial Action Observations* for discussion of cleanup actions.
129	PES/EKI			In addition, SVE/GASS has reduced PCE concentrations in soil gas by orders of magnitude. For example, PCE in soil vapor probe VP-2, located near the suspected PCE release location, has declined from a maximum concentration of 8,136,000 µg/m3 to a current concentration of 88 µg/m3.[310] As discussed in Section 9.5, PCE concentrations in indoor air samples collected from LTLW tenant spaces in 2015 were less than the indoor air ESL of 2 µg/m3 for commercial use, which demonstrate VOCs in soil gas are not resulting in unacceptable vapor intrusion risks. MCLs are the Regional Board-approved cleanup goals for groundwater at the LTLW.	We disagree. Potential threats to human health posed by the regional PCE plume via the vapor intrusion to indoor air pathway have not been adequately evaluated to date. See Response to Comment Nos. 8 (incomplete remediation; need for additional remediation) and 124 (need for additional vapor intrusion assessment). As stated in the Order, cleanup goals are governed by Resolution 92-49 and California Code of Regulations, title 23, section 2550.4. (See Order, Finding 61).
130	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	60, 61	Hydrologic monitoring performed at Eloise Basin between 2003 and 2005 suggests groundwater infiltrates the basin annually during late winter to early spring.[311] The subsurface region beneath a water body where conditions change from a groundwater dominated to surface water dominated system is designated the transition zone.[312] The locations and characteristics of transition zones and associated groundwater discharge areas vary both spatially and temporally.[313] Not all areas of a water body receive groundwater discharge, and even if this pathway were complete at some locations within the Tahoe Valley South Subbasin, VOC concentrations at the groundwater table are too low to cause ecological threats. The maximum PCE concentration measured in first encountered groundwater was 63.3 µg/L[314] in a sample obtained at 22 feet bgs from borehole LTLW-GW-11. This	We disagree. An ecological screening evaluation has not been performed for the entire extent of discharge (i.e., all areas affected by the regional PCE plume). PCE concentrations above the ecological ESL screening level have been reported within the regional PCE plume. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). Requiring an evaluation of ecological threats associated with the regional PCE plume is consistent with the available data and guidance to ensure investigation and cleanup and abatement of the discharge and/or threatened discharge. The approach used in the screening level ecological evaluations is to identify potentially complete exposure pathways between areas of contamination and biota which occupy or

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				concentration is less than the ecological ESL of 120 µg/L.[315] The main objective of screening levels is to quickly enable users to distinguish which sites pose a significant threat.[316] Sites that are adequately characterized with chemical concentration data below the ESLs most likely do not pose a threat.[317] For that reason, no ecological risk assessment is needed for the Tahoe Valley South Subbasin. Task 6 should be removed from the Proposed Order.	potentially could occupy the site in the future, or habitats outside of the Site boundary that could be affected by contamination from the Site. If there are potentially complete exposure pathways, further site investigation and assessment may be warranted. Lahontan Water Board staff acknowledge that a number of data gaps in our understanding of the fate and transport of PCE contamination in the South Y Area remain including the extent and distribution of PCE contamination within and down-gradient of the Site and the lateral and vertical extents of PCE contamination in the regional PCE plume. See Response to Comment No. 6 (incomplete delineation; CSM needs updating).
131	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	61	The Proposed Order requires preparation and implementation of an Interim Remedial Action Plan (IRAP) and a Remedial Action Plan (RAP) that are duplicative in scope and pertain to the Regional PCE Contamination instead of the localized impacts resulting from the PCE discharge at the LTLW.	We disagree. As a preliminary matter, when the Dischargers propose actions to clean up and abate the discharge and/or threatened discharge, they may propose remedies in an Interim Remedial Action Plan that will also meet the requirements of a Remedial Action Plan. There is no penalty for doing so. We also disagree that the Site has only caused localized impacts. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
132	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	62	The requirement to implement an IRAP that addresses COCs above ESLs is improper because such exceedances are not appropriate criteria for requiring remedial action. As SFRWQCB itself has recognized "the presence of a chemical at concentrations exceeding an ESL does not necessarily indicate adverse effects on human health or the environment, rather that additional evaluation is warranted."[321] This is because ESLs are conservatively based on a 1 x 10^{-6} risk level.[322] Both U.S. EPA[323] and DTSC[324] consider a 1 x 10^{-6} risk level to be a point of departure for establishing cleanup goals based upon potential cancer effects. In other words, U.S. EPA and DTSC consider risks less than 1 x 10^{-6} to be insignificant and no further action is required. SFRWQCB states "[c]leanup goals typically are chemical concentrations for a specific site that are agreed-upon through a risk and feasibility evaluation and discussions between the overseeing regulatory agency and the discharger considering site-specific conditions."[325] Consistent with State Water Board Resolution No. 92-49 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the need for remedial action should not be based on ESLs, but on anthropogenic contaminant background concentrations, results of the HHRA, and compliance with applicable or relevant and appropriate requirements (e.g., MCLs).	CAO Revised. The Order was revised to include submittal of an initial and a comprehensive HHRA. The initial and comprehensive HHRAs will support the initial and comprehensive IRAPs required in Order 6.d.i. CAO Section 6d.i has been revised to delete "where COCs exceed screening levels". Implementation of an initial Interim Remedial Action Plan to protect human health based on Human Health Risk Assessment results which utilize existing available information is appropriate. Implementation of a comprehensive Interim Remedial Action Plan based on Human Health Risk Assessment results which utilize any additional relevant information gathered following completion of the site investigation activities required in Order 2 is also appropriate.
133	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	63	Rather than require an IRAP based on ESL exceedances, the appropriate step to address ESL exceedances is preparation of an HHRA. An HHRA is used to determine whether response actions such as remediation is necessary, to help provide justification for performing remedial action, and to assist in determining what exposure pathways need to be remediated.[331]	CAO Revision. See Response to Comment No 132 (HHRA). Order 5 was revised to require preparation and submittal of "an initial and a comprehensive" Human Health and Ecological Risk Assessment to support development of the initial and comprehensive Interim Remedial Action Plans required in Order 6d.
134	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry	63	Even if an IRAP were appropriate, the Regional Board's schedule for submitting and implementing such a plan is unreasonable. The IRAP actually entails completing five separate plans that are intended to: (1) Enhance contaminant mass removal and address off-Site COC	CAO Revision. *Order Attachment C, Time Schedule* has been revised to reduce the number of standalone tasks and allow additional time to submit deliverables (i.e., the comprehensive IRAP is now required eleven months after Order adoption). *Order 6d Interim Remedial Action Plan*

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		Works Cleanup and Abatement Order		migration at the LTLW. (2) Evaluate and destroy any vertical conduits (e.g., water supply wells and/or monitoring wells) within the Regional PCE Contamination that allow the downward migration of COCs. (3) Remediate COCs identified in any preferential pathways (e.g., stormwater conveyance system/Tucker Basin) located within the Regional PCE Contamination. (4) Mitigate any threats to human health at the Site or off-Site via the vapor intrusion to indoor air pathway. (5) Address any immediate threats to the beneficial use of groundwater not mitigated by implementation of the Permanent Water Replacement Plan. The Proposed Order requires these five plans to be submitted to the Regional Board within two months of Order adoption.[332] That alone is impossible, but the Proposed Order also requires completion of no less than thirteen other tasks during the same period.	text has also been revised to clarify which components are required to be submitted within the initial and comprehensive IRAPs, respectively. Order 6d requires submittal of an initial Interim Remedial Action Plan (IRAP) two months after Order adoption and a comprehensive IRAP eleven months after Order adoption. The initial IRAP is intended to evaluate and identify any "imminent" threats to human health, if any, based on existing available data and propose the actions necessary to mitigate the immediate threat(s), if any, identified. The comprehensive IRAP is intended to evaluate and identify any threat(s) to human health following completion of the site investigation activities required in Order 2. Lahontan Water Board staff are not opposed to receiving combined reports, as long as the respective tasks are completed by their deadlines.
135	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	63	Further, the goals of the IRAP are ambiguous. For example, the "contaminant mass removal plan" is supposed to "address" off-site COC migration at the Site. The word "address" is vague and does not convey what is required.	CAO Revision. Use of the word "address" has been removed from Order requirements and replaced with revised clarifying language (e.g., evaluate, identify, mitigate, prevent, etc.). In the case of Order 6.d.i.(1), the text has been revised to "A plan to enhance contaminant mass removal and *prevent* ~~address~~ off-Site COC migration at the Site.)".
136	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	63	Similarly, the vertical conduit plan requires evaluation and destruction of "any" vertical conduits within the Regional PCE Contamination that "allow" the downward migration of COCs" and the preferential pathway plan requires remediation of COCs identified in "any" preferential pathways. The language of these requirements does not appear to distinguish between vertical conduits and preferential pathways that have the potential to materially impact the Regional PCE Contamination from those that do not, nor does the Proposed Order describe expected actions for those vertical conduits that are permitted in the South Y Area, such as dry wells, unlined sumps, seepage pits, and stormwater detention basins.[333]	CAO Revision. Order 6.d.i.2 text has been revised to "A plan to evaluate and i*dentify* ~~destroy~~ any vertical conduits (e.g., water supply wells and/or monitoring wells) within the regional PCE plume *that have the potential to influence contaminant transport to receptors*. ~~allow the downward migration of COCs~~. *The plan shall include recommendations for each specific vertical conduit and be included in the comprehensive IRAP*." Order 6.d.i.3 has been revised to "(3) A plan to remediate *or mitigate* COCs identified in any preferential pathways (e.g., stormwater conveyance system/Tucker Basin) located within the regional PCE plume *which have the potential to pose threats to human health and the environment as determined by the initial and comprehensive HHRAs required in Order 5. The plan shall include recommendations for specific preferential pathways or features (i.e., Tucker Basin) and be included in the comprehensive IRAP*."
137	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	63	Finally, the vapor intrusion and groundwater beneficial use plans require mitigation of "any" threats, without regard to the magnitude of the risk or the likelihood of it arising.	CAO Revision. Order 6d.i.4 text has been revised to "A plan to remediate *or mitigate* any *potential* threats to human health at the Site or off-Site via the vapor intrusion to indoor air pathway *as determined by the initial and comprehensive HHRAs required in Order 5*." Dischargers should identify, evaluate, and provide recommendations for any threats posed via the vapor intrusion to indoor air exposure pathway at on-Site or Off-Site locations for Water Board review and concurrence. Order 6d.i.5 text has been revised to "A plan to *remediate or mitigate* ~~address~~ any *imminent* ~~immediate~~ threats to the MUN beneficial use of groundwater outside of the PWRP actions *as determined by the initial HHRA required in Order 5.*" Dischargers should identify, evaluate, and provide recommendations for any imminent threats, if any, to the MUN

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					beneficial use of groundwater outside of the PWRP actions for Water Board review and concurrence.
138	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	64	The Proposed Order states all work associated with the IRAP be completed within two years. That requirement is particularly unreasonable given the Proposed Order requires that the IRAP scope of work be completed concurrent with site investigations that presumably would inform the scope of and implantation of the interim remedial work.[334]	We disagree. Given the Dischargers' history of recalcitrance in complying with basic site investigation requirements, and the known, insidious threat to drinking water wells, impacting three separate water districts which supply approximately 97% of the community's water supply, it is not appropriate to wait any longer to implement immediate interim remedial actions. The two-year deadline to submit an IRAP completion report is more than reasonable, particularly given the SCAP funded investigation activities, which have largely achieved CAO investigation requirements and provided sufficient "reconnaissance" level data that can be used to formulate an IRAP. The IRAP report deadline is suitably phased to follow any additional site investigation activities necessary (as required in Order 2). If unanticipated implementation delays occur, the IRAP completion date can be revised utilizing, Order 16 which states "The Lahontan Water Board, through its Executive Officer, may revise this Order as additional information becomes available. Upon written request by the Dischargers, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Dischargers under this Order....."
139	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	64	The RAP serves the same function as the IRAP as these tasks are described in the Proposed Order. The IRAP is supposed to address "immediate threats" that are not mitigated by the Permanent Water Replacement Plan[335] but the Proposed Order does not define the conditions that constitute such threats.	Comment Noted. The Order has been revised to include definition of "imminent" (see CAO Finding 53).
140	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	64, 65	The Regional Board claims "[i]t is not necessary to identify all dischargers prior to proceeding with requirements for investigation and clean up and abatement"[337] However, continued PCE leaching from off-Site sources makes restoration of groundwater to its beneficial uses and background quality technically and economically infeasible to accomplish. U.S. EPA guidance realizes other sites contributing to regional groundwater contamination must be addressed to enable effective remediation of the plume as a whole.[338] U.S. EPA states "aquifer restoration will not be possible unless further leaching of contaminants to ground water is controlled, from both surface and subsurface sources."[339] The NRC concludes "[a]s long as the source remains, a dissolved phase plume will continue to develop; hence, removal (or isolation) of the source zone is required to halt creation of the dissolved phase plume."[340] CalEPA indicates that a CSM should incorporate information about each site that may be a chemical source.[341] ASTM International likewise states the location, boundaries, and volume of each source should be measured or estimated.[342]	We disagree. See Response to Comment Nos. 102 (remedial action recommendations will be based on updated CSM and HHRA, which includes identification of potential sources contributing to the regional PCE plume), 27 (identification and naming of other potential sources), 45 ("hot spots" within the regional PCE plume), and 6 (CSM needs updating).
141	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	65	The Regional Board has not completed the crucial work of identifying off-Site sources that would be necessary if PCE is to be reduced to concentrations less than the MCL of 5 µg/L throughout the Tahoe Valley South Subbasin. The Regional Board has opted to try to shift that burden to Seven Springs and Fox by declaring LTLW is "connected" to PCE measured at concentrations greater than 500 µg/L in groundwater at the former Big O Tires facility and former Norma's Cleaners site[343] even though the Regional Board has determined PCE	We disagree. See Response to Comment Nos. 18 (orders issued to Big O Tires and former Norma's Cleaners), 32 (ongoing enforcement actions at Big O Tires and Former Norma's Cleaners), 27 (identification and naming of other potential sources), and 20 (pursuit of SCAP funding).

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				has been released at both properties and admits other off-Site sources likely exist in the Tahoe Valley South Subbasin.	
142	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	65	The Regional PCE Contamination is not the responsibility of Seven Springs and Fox because the Regional PCE Contamination is due to off-Site sources. Even if it were, wellhead treatment being performed by TKPOA and LBWC already protects individuals from exposure to COCs in extracted groundwater. U.S. EPA makes clear that protectiveness of human health does not have to be achieved by reducing COCs concentrations in affected media to cleanup goals especially when such remediation is not possible: In refining alternatives, it is important to note that protectiveness is achieved by reducing exposures to acceptable levels, but achieving these reductions in exposures may not always be possible by actually cleaning up a specific medium to these same levels. For example, protection of human health at a site may require that concentrations of contaminants in drinking water be reduced to levels that could not reasonably be achieved for the water supply aquifer; thus, protection could be provided by preventing exposures with the use of a wellhead treatment system.[344] The example cited in the above excerpt from U.S. EPA is the situation that confronts the Regional Board. Given the Regional Board's unwillingness to pursue the sites that are responsible for the Regional PCE Contamination, leaching of PCE will sustain COC concentrations above MCLs in groundwater, making it impossible for the Regional PCE Contamination to be remediated.	We disagree. See Response to Comment Nos. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other sources) and 102 (remedial action recommendations will be based on updated CSM and HHRA, which includes identification of potential sources contributing to the regional PCE plume). Lahontan Water Board staff acknowledge wellhead treatment as a potentially acceptable remedy for preventing exposure to COCs in groundwater. See *CAO Staff Report Section 7 Summary of Receptor Impacts* for a summary of municipal, small community, and domestic wells impaired, impacted, and threatened by the regional PCE plume. In addition, we note that Resolution 92-49 requires the Lahontan Water Board to ensure that dischargers are aware of and consider a number of potential remedial technologies. Lahontan Water Board staff have presented Dischargers with a number of case studies that demonstrate that cleanup of lengthy, complex solvent plumes is possible in a short timeframe (3-5 years). Utilization of these technologies may provide a significant cost savings over monitoring and wellhead treatment over decades or even hundreds of years. Resolution 92-49 also requires that a proposed cleanup schedule "achieve timely compliance" (i.e., the Dischargers must propose the procedures for identifying and utilizing the most cost-effective and timely methods for detecting contamination and cleaning up and/or abating its effects).
143	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	66	Section 13304 of the Water Code considers wellhead treatment to be an acceptable remedy for preventing exposure to COCs in groundwater.[345] The preferred alternative identified in STPUD's feasibility study entailed continued use of existing wellhead treatment for groundwater extracted from the Tahoe Valley South Subbasin.[346] The Regional Board also acknowledges wellhead treatment could be the permanent water replacement plan for the Regional PCE Contamination.[347] The remedial action requirements in the Proposed Order are not warranted because (1) no exposure to COCs in groundwater is occurring due to operation of existing wellhead treatment systems, and (2) LTLW is not the cause of the Regional PCE Contamination. If the Regional Board elects to issue the Proposed Order, then Task 7 of the Proposed Order should be limited to operating the SVE/GASS, as specified by Task 7.a.1, and preparation of a RAP that evaluates additional remedial actions to restore groundwater at the LTLW to its beneficial uses designated in the Water Quality Control Plan for the Lahontan Region.	We disagree with assertion (1) see Response to Comment No. 124 (need for vapor intrusion assessment) and 128 (need for HHRA) and assertion (2) see Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors). In addition, see Response to Comment No. 142 (viability of wellhead treatment and the need to evaluate other potential economically feasible remedial options). Therefore, no edits were made to Task 7.
144	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	66, 67	The Proposed Order requires establishes an impossibly aggressive schedule for completing the required work. The two-month timeframe for submittal of these documents is unreasonable, especially given the fact all of following are required to be submitted to the Regional Board within two months of the Order being adopted: (1) Conceptual Site Model (Estimated Development Time = 3 weeks, per Attach. C) (2) Sampling and Analysis Plan (Estimated Development Time =	CAO Revision. Lahontan Water Board staff acknowledge the multiple components of the required work, aggressive schedule, and staff hours needed to accomplish Order requirements. The revised schedule is consistent with industry practices and regulatory requirements (i.e., deadlines for submittal of public participation plans, fact sheets, and work plans) and consider time estimates provided by the Dischargers' consultants for specific Order tasks. The work requirements are standard industry items, suitably phased and reasonable in scope considering the work,

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				2 weeks, per Attach. C) (3) Quality Assurance Project Plan (Development Time included with SAP) (4) Site Investigation Work Plan (Estimated Development Time = 4 weeks, per Attach. C) (5) Monitoring Well Installation Work Plan (Estimated Development Time = 2 weeks, per Attach. C) (6) Vapor Intrusion Investigation Work Plan (Estimated Development Time = 2 weeks, per Attach. C) (7) Initial Interim Remedial Action Plan (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 8 weeks) (8) Report on Interim Emergency Water Replacement to Municipal Supply Entities (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 3 weeks) (9) Public Participation Plan (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 2 weeks) (10) Baseline Community Assessment (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 1 week; however, may be significantly longer if a community information gathering questionnaire is required to be mailed.) (11) Interested Persons Contact List (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 1 week) (12) Draft Fact Sheet (No Estimated Development Time provided in Attach. C. Assumed by Seven Springs/Fox to be 1 week) The total estimated time to develop the aforementioned reports and planning documents is 29 weeks or approximately 7 months. However, the Regional Board is requiring these documents to be submitted within two months with the threat of civil liabilities/fines for failure to comply with these impossible deadlines. For perspective, SCAP funding was received by the Regional Board on 4 March 2019, but AECOM's SAP/QAPP[348] and Regional Plume Characterization Work Plan[349] were not finalized until June and July 2019, respectively. AECOM and the Regional Board needed four months to prepare the SAP/QAPP and Regional Plume Characterization Work Plan, all while not having the burden of fulfilling the additional requirements and reports listed above, or a need to coordinate between multiple parties and agencies. Therefore, the Proposed Order needs to be revised to reflect an appropriate time schedule such that tasks are suitably phased and scheduled and consistent with industry practices.[350]	including SCAP investigation activities, already performed to date which have largely achieved Order investigation requirements and provided sufficient "reconnaissance" level data that can be used to update the Conceptual Site Model, develop the initial Human Health Risk Assessment and formulate initial Interim Remedial Action Plan actions. The intention is that the Dischargers will work quickly to resolve a regional problem left unaddressed for far too long. Lahontan Water Board staff also note that "upon request by the Dischargers, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Dischargers under this Order.....". See Response to Comment No. 145 (specific deadlines needed; extensions can be granted by EO). In consideration of the comments received on the proposed CAO, the Order and *Order Attachment C, Time Schedule* has been revised to (1) remove requirements for standalone SAP and QAPP documents, (2) revise the MWIIWP submittal deadline to follow completion of Site Investigation activities, (3) allow additional time to determine and provide water replacement to impaired non-municipal supply wells, and (4) allow additional time for risk assessment and work plan development. The deadline to submit the initial CSM, initial HHRA, SIWP, VIIWP, and initial IRAP within 2 months of Order adoption remain.
145	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	67, 68	Additionally, installation of monitoring wells, and performance of the Site and Vapor Intrusion Investigations are to be completed within six months of Order adoption but, under the Proposed Order's time schedule, work on these tasks cannot commence until the Regional Board approves the associated work plans.[351] Tasks contingent upon Regional Board's approval to start need to be revised to reflect an appropriate and reasonable schedule that is based upon when approval is given.	We disagree. Dischargers have previously misused the "contingent deadline" language of the 2017 CAO to ensure that no future deadline ever occurs. In other words, by failing to complete site delineation, the Dischargers have previously ensured the corrective action plan required to be submitted within 90 days of the final investigation summary report is never actually due to be submitted. See Response to Comment No. 19 (concerns with investigation strategy; evading corrective action plan submittal requirement). It is clear now, five years later, that specific deadlines are necessary. The specific deadlines in the Order are reasonable and consider time for submittal, regulatory

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					review and implementation. If unanticipated implementation delays occur, the task completion dates can be revised utilizing Order 16 which states "The Lahontan Water Board, through its Executive Officer, may revise this Order as additional information becomes available. Upon request by the Dischargers, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Dischargers under this Order....."
146	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68	Another issue with the Proposed Order's schedule is that it fails to account for the fact that the Proposed Order envisions multiple rounds of plans. Task 3 refers to Site Investigation Work "Plan(s)"and Task 4 refers to Monitoring Well Installation Work "Plan(s)." However, the Proposed Order requires submittal of completion reports based on "Order adoption" and does not provide time for submittal, approval, and implementation of multiple plans.	CAO Revision. Lahontan Water Board staff do not envision the need for multiple rounds of work plans based on the work already completed to date (i.e., Dischargers and SCAP activities) and remaining data gaps identified but do acknowledge the time needed to complete Lahontan Water Board staff review. See Response to Comment No. 144 (schedule is consistent with industry practices and regulatory requirements). The Order has been revised to require site investigation activities to be completed within 9 months of Order adoption and the final site investigation completion report to be submitted within eleven months of Order adoption. The MWIIWP deadline has also been revised to follow completion of site investigation activities (i.e., within eleven months of Order adoption). In the event extensions are needed, the Order allows the Executive Officer to revise the Order as additional information becomes available. See Response to Comment No. 145 (specific deadlines needed; extensions can be granted by EO).
147	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68	The Schedule in Attachment C also is unreasonable insofar as it fails to account for scheduling challenges posed by the need to obtain access to properties not owned by Seven Springs or Fox and the limited field season in South Lake Tahoe. The Proposed Order ignores the access issue altogether and purports to account for seasonal issues by noting that it may grant extensions pursuant to the terms of the Proposed Order. The Regional Board has an obligation to adopt reasonable provisions, and it cannot avoid that obligation by requiring the parties named in the order to seek extensions. The Proposed Order should contain a provision that makes deadlines for field work subject to the ability to obtain reasonable site access and contractor availability.	We disagree. Lahontan Water Board staff oversee and have a combined decades of professional experience regarding cleanups that require access to other sites. The Order considers the timeframes that are normally necessary to accommodate those additional steps. See Response to Comment No. 144 (schedule is consistent with industry practices and regulatory requirements). See Response to Comment No. 18 (access to other properties). If Dischargers undertake the required activities using standard professional practices, these timeframes can be achieved. To the extent that Dischargers encounter unexpected challenges, we note that the Order provides a mechanism to seek additional time for compliance. Lahontan Water Board staff have a history of collaborating with dischargers to ensure the success of cleanups, including providing necessary extensions where circumstances warrant them. The Dischargers' track record on this particular Site warrants specific deadlines. See Response to Comment No. 145 (specific deadlines needed)
148	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68	In addition, the Proposed Order should state that it does not require field work to be performed between the months of October and May when snowfall typically covers the ground surface. This timeframe coincides with the TRPA's non-Grading Season, defined to be between 15 October and 1 May of each year during which TRPA restricts construction activities.[352] The Regional Board should adjust any deadline for field work in the Proposed Order that falls between October and May to a reasonable deadline outside that period, and extensions due to seasonable issues may be sought as appropriate.	We disagree. Lahontan Water Board staff acknowledge TRPA's non-Grading Season, which prohibits all soil disturbing activities (e.g., excavation, backfilling) unless a grading season exemption is issued, as well as the challenge of performing field work in the Tahoe Basin due to seasonal considerations. If weather and ground conditions allow, however, field work can be performed between October and May. Grading season exemptions can be issued by both TRPA and the Lahontan Water Board provided the proposed activities are necessary for the protection of public health and safety, for erosion control purposes, or for the protection of water quality. Non-soil disturbing activities (e.g., groundwater monitoring) do not require grading season exemptions.

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149	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68	Page 1 of the Monitoring and Reporting Program provided in Attachment E of the Proposed Order requires collection and analysis of groundwater samples from "threatened, impacted, and impaired active water supply wells" on a quarterly basis. This requirement is based on the premise that the Regional PCE Contamination originated from the LTLW. Detected concentrations of PCE in public water system wells in the Tahoe Valley South Subbasin are not attributed to the LTLW. Therefore, the Proposed Order needs to be revised to remove the requirement for sampling off-Site public water system wells.	We disagree. The available data does not indicate any separation between the Site, regional PCE plume, and affected receptors. See Response to Comment No. 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
150	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68	The Proposed Order is not needed to complete cleanup of the LTLW and should not be adopted because the LTLW has been fully characterized and effective remedial actions are in place that can be enhanced to address residual PCE in middle zone groundwater at the Site.	We disagree. The Dischargers must propose actions to extend the investigation, and cleanup and abatement, to the locations affected and threatened by the entire extent of discharge originating from the Site. See Response to Comment Nos. 6 (incomplete delineation), 8 (incomplete remediation and 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors).
151	PES/EKI	September 19, 2022 Subject: Comments on Proposed Lake Tahoe Laundry Works Cleanup and Abatement Order	68, 69	The primary intent of the Proposed Order is to require investigation and remediation of contamination for which LTLW is not the cause. Without access to and investigation and remediation of off-Site sources, the Proposed Order will have little to no effect on restoring groundwater within the Tahoe Valley South Subbasin to its beneficial uses because off-Site sources are sustaining the Regional PCE Contamination. If off-Site sources are not abated, then the only feasible alternative for preserving groundwater as potable supply is to treat water at the wellhead, which currently is being done.	We disagree. See Response to Comment Nos. 8 (incomplete remediation), 22 (regional PCE plume begins at the Site and continues, uninterrupted, to various receptors), 27 (identification and naming of other sources), 102 (remedial action recommendations will be based on updated CSM and HHRA, which includes identification of potential sources contributing to the regional PCE plume) and 142 (wellhead treatment as a remedial option).
152	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	2	The Proposed Order is improper in numerous respects. *First,* the Proposed Order essentially ignores the precedent established by the Court of Appeal's decision in *United Artists Theatre Circuit, Inc. v. Reg. Water Quality Control Bd.,* 42 Cal. App. 5th 851 (2019). The Court of Appeal held in that case that a prior landlord cannot be liable for "permitting" a discharge under Section 13304 of the Water Code unless it knew or should have known of the reasonable possibility of a discharge that would result in a groundwater contamination nuisance. Disregarding that holding, the Regional Board impermissibly seeks to impose liability on Fox because it allegedly "knew or should have known" of "the general activity" that "created a reasonable possibility of a discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance."	We disagree. See Master Response to Legal Comments, section III; and Staff Report, *United Artists* discussion, particularly sections 2.4-2.7.
153	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	2, 3	*Second,* the Proposed Order attempts to hold Fox liable without proving by a preponderance of the evidence that Century 73 or Fox should have known that the operation of the LTLW laundromat created a reasonable possibility of a discharge that could create a groundwater contamination nuisance. As it did when it issued a prior order that was invalidated by the courts, the Regional Board eschews reliance on site-specific evidence, contemporaneous documents or the testimony of percipient witnesses that operated the LTLW, and instead bases the Proposed Order on evidence adduced in a different case regarding a different site. The cherry-picked record from that case reflects that in the 1970s, not even industry insiders-let alone the general partner of a landlord of the owner of a coin-operated dry cleaning machine-knew of a reasonable possibility of a groundwater contamination nuisance resulting from discharges from a coin-	See Master Response to Legal Comments, section III. This comment, and numerous others focus on what Fox *actually* knew or asserts that the facts in the City of Modesto are factually distinct. *United Artists* is broader, however, and finds liability where a prior owner "*should have known*" of the "reasonable possibility of a discharge" associated with a lessee's activity. As discussed in the Master Response to Legal Comments and Staff Report, the City of Modesto evidence is illustrative of the information available to dry cleaners, and the general public before or during the time of Fox's ownership and operation of the Lake Tahoe Laundry Works. We find that a preponderance of that evidence supports a finding that Fox knew or should have known of the reasonable possibility of a discharge of PCE from dry cleaning operations at the site to waters of the State.

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				operated dry cleaning unit. The other evidence relied upon by the Regional Board is to the same effect. Put simply, none of the documents cited by the Regional Board overcome the overwhelming evidence that dry cleaner contamination was not commonly known (if known at all) in the 1970s, even by California's regional boards.	
154	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	3	*Third,* the Proposed Order fails because the Regional Board has not shown, as Regional Board precedents interpreting Section 13304 require, that Century 73 or Fox could have prevented the discharge at issue. The evidence in this case indicates that a discharge of PCE occurred before Century 73 acquired the property, and case law makes clear that neither Century 73 nor Fox had a duty to take extraordinary measures (such as a subsurface investigation at a time when such investigations were largely unheard of) to inspect a tenants activities.	See Master Response to Legal Comments, section III.
155	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	3	*Fourth,* the Proposed Order improperly seeks to impose liability on Fox as the general partner of Century 73, even though any such liability lapsed many years ago pursuant to California law governing the dissolution of partnerships.	See Master Response to Legal Comments, section IV.A. In addition, Fox failed to challenge substantively identical findings of liability in response to the 2017 CAO. (Water Code §§ 13320 and 13330.)
156	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	3	*Fifth,* the Proposed Order improperly holds Fox liable for lawful pre-1981 acts, in direct contravention of Section 13304's express provisions.	See Master Response to Legal Comments, section IV.B.
157	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	3	*Sixth,* the Proposed Order violates Section 13267 in multiple respects, including by requiring cleanup and abatement in addition to technical and monitoring reports, by seeking to impose liability on a party that has not discharged and is not suspecting of discharging waste into waters of the state, and by imposing requirements without properly assessing their costs and burdens.	See Master Response to Legal Comments, section IV.C; and Response to Comment Nos. 97, 99 and 100 (addressing cost/burden arguments and the relevant law). The Staff Report is replete with evidence concerning the source of the discharges. See also Response to Comment No. 27 (joint and several liability).
158	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	3	Seventh, the Proposed Order's expansive and draconian scope is unlawful. The Regional Board does not have authority to require Fox to investigate, cleanup and abate waste discharged by other parties. It cannot require Fox to access and destroy property Fox does not own. It has no authority to compel Fox's consultants to adopt a conceptual site model that conflicts with known facts and sound science. It cannot dictate how Fox complies with an order when the statute expressly prohibits it from specifying "the manner in which compliance may be had." And it cannot discard its prior conclusions without explaining why it changed its mind.	See Master Response to Legal Comments, and Response to Comment Nos. 6 (delineation incomplete and necessary; flawed site conceptual model), 8 (remediation incomplete and necessary), 9 (understanding evolved over time; prior statements based upon incomplete data are irrelevant), 27 (joint and several liability for commingled plume). The Order is consistent with Water Code section 13360 and does not dictate manner of compliance, but rather requires Dischargers to propose workplans, providing great latitude to Dischargers to conduct cleanup in the most cost-effective manner, provided that it does so in a timely fashion so as to protect drinking water wells and human health.
159	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order	13	Under a preponderance of the evidence standard, the Regional Board must show that "the evidence on one side outweighs, preponderates over, is more than, the evidence on the other side." For the reasons set forth below, the Proposed Order does not comply	See Master Response to Legal Comments, and Response to Comment Nos. 152, 153 and 163. As noted in the Master Response to Legal Comments, using Dischargers' own arguments that a preponderance of the evidence must weigh in support of the Order's findings – and we

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		R6T-2022-(Proposed) for Lake Tahoe Laundry Works		with the law, is not backed by adequate findings, and is not supported by a preponderance of the evidence.	agree that is the law – not only does the preponderance of the evidence weigh in support, virtually *all* of the evidence supports the Order.
160	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	13	In this case, the Regional Board does not contend that Century 73 or Fox "caused" a discharge, and there is no evidence that either entity did. Instead, the Regional Board alleges only that Century 73 and Fox "permitted" a discharge.[80] The Regional Board acknowledges that the Court of Appeal in *United Artists* has established a new standard for determining when a former landowner can be deemed to have permitted a discharge, but, as explained below, it failed to apply it.	See Master Response to Legal Comments, and Response to Comment Nos. 152 and 153.
161	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	14	Thus, following the *United Artists* decision, to establish liability under Section 13304, the Regional Board must show by a preponderance of the evidence that Fox knew or should have known that the coin-operated dry cleaning unit at the LTLW created a reasonable possibility of discharging wastes, and that those wastes could reach state waters (including groundwater) and result in a condition of pollution or nuisance.	See Master Response to Legal Comments, and Response to Comment Nos. 152, 153 and 163.
162	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	16	Despite conceding that the *United Artists* decision governs this case, the Proposed Order fails to apply it. Paragraph 73 of the Proposed Order asserts that Century 73 is liable under Section 13304 because it "had knowledge of ... the activities ... that caused the discharge." Paragraph 75 of the Proposed Order similarly provides that "[t]he evidence establishes that Fox knew or should have known of the general activity that created a reasonable possibility of discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance." In both paragraphs, the quoted language reflects the same legal theory advanced by the San Francisco Regional Board and rejected by the Court of Appeal in *United Artists.*	See Master Response to Legal Comments, and Response to Comment No. 152 (application of *United Artists*).
163	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	17	Even if the Regional Board were to apply the correct legal standard, the Proposed Order would still be unlawful because the Regional Board has not shown-and cannot show-that Century 73 or Fox knew or should have known that the use of a coin-operated dry cleaning unit at the LTLW presented a reasonable possibility of a groundwater contamination condition or nuisance. Despite the fact that that the Regional Board has been investigating the Regional PCE Contamination for over thirty years, there is no evidence of any kind-no eyewitness testimony, no contemporaneous documents-that either Century 73 or Fox actually knew of any discharge into waters of the state from the LTLW. In fact, both of the tenants that operated the LTLW during Century 73's ownership of the South Y Shopping Center have provided sworn statements that they had no knowledge of any PCE spills at the LTLW. Accordingly, the Regional Board's case rests entirely on the claim that Century 73 and Fox "should have known" of a discharge of PCE that even the operators of the LTLW did not know of or suspect. As explained in detail below, none of the evidence supplied by the Regional Board-and certainly not a preponderance of the evidence in the record-supports the Regional Board's position.	See Master Response to Legal Comments, and Response to Comment Nos. 152 (application of *United Artists*) and 153 (addressing sworn statements).

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164	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	17	In alleging that Century 73 and Fox "should have known" of the reasonable possibility of a discharge from the LTLW to state waters, the Regional Board cites neither contemporaneous. site-specific documents nor testimony (or any other statements) from percipient witnesses or anyone associated with the LTLW or the South Y Shopping Center.	See Master Response to Legal Comments, and Response to Comment Nos. 152, 153 and 163 (application of *United Artists* and extensive evidence supporting the Order's findings).
165	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	18	Rather than relying on any court rulings in *City of Modesto,* the Regional Board asserts that the evidence adduced in that case shows that dry cleaner operations posed a risk of groundwater contamination and that during the 1970s a landowner should have known that was the case. But even with the benefit of the *City of Modesto* record, the Regional Board cannot point to a single landlord (or even a retail dry cleaner) who actually knew in the 1970s of a "reasonable possibility" that dry cleaning operations would result in groundwater contamination. Indeed, a review of each of the nine categories of evidence cited by the Regional Board demonstrates a widespread ignorance during the relevant timeframe of any such risk during that timeframe, even among dry cleaning industry insiders.	See Master Response to Legal Comments, and Response to Comment Nos. 152, 153 and 163. Similar to the two former dry cleaning operator witnesses in this case, asserted ignorance of dry cleaner operators or landowners is subject to an inherent credibility problem, given their potential liability. As discussed in Response No. 153, we find the more credible witness statements to be those of neutral observers.
166	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	19	"PCE Was Commonly Used in Dry Cleaning." The Regional Board begins by presenting evidence from the City of Modesto record that dry cleaners increasingly used PCE in the 1960s, largely because it was considered less flammable than petroleum-based solvents. The evidence is unremarkable. It is not evidence of the reasonable possibility of a discharge to groundwater that could threaten to cause a nuisance, or of anyone's knowledge of such a possibility.	Comment noted.
167	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	19	"PCE is a Hazardous Substance." The Regional Board cites a number of documents that purport to demonstrate that PCE was known to be hazardous. However, the documents referenced by the Regional Board consist of documents from a different time period (the 1940s or 1950s) or documents that concern hazards other than the hazards at issue in this case (e.g., inhalation and skin hazards from product use), or both. For example, the Regional Board references "Staff Report Ref. #2, "Manufacturing Chemists Ass'n, PCE Chemical Safety Data Sheet SD-24, 1948" (City of Modesto Ex. 14), which is a 1948 document that identifies inhalation and skin hazards, but makes no mention of a groundwater contamination risk. The Regional Board also references a "Staff Report Ref. #5, Trade Waste Waters, 1959, Abstract of Kamovsky & Rupprecht, Vapours of [PCE] endanger sewer operation and the sewer workers, Stiiudtelzygiene, 1958" (City of Modesto Ex. 189), which summarizes a German article about harm to sewer systems, workers, and microorganisms in sewage treatment process, but again does not discuss groundwater contamination. A third document, "Staff Report Ref. #6, Dow, Pollutional Evaluation of Compounds with Red Flag Designation, 1965" (City of Modesto Ex. 22), is an internal Dow Chemical document identifying PCE as hazardous under a test for degradability used by sewage plants. The Regional Board also references "Staff Report Ref. #9, Am. Insur. Asso., Chemical Hazards Bulletin, Chlorinated Hydrocarbons, 1967" (City of Modesto Ex. 197), which focuses on the need for ventilation and problems with inhalation and body contact. Importantly, there is	See Master Response to Legal Comments, section III and Response to Comment No. 153.

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				no direct or even circumstantial evidence that any of these documents would have been reviewed by the operators of the LTLW, Century 73, or Fox, and it is unreasonable to assume that a general partner of a shopping center landlord should have known of the contents of documents such as abstracts of German studies of microorganisms in sewage systems. The latter issue also applies to "Staff Report Ref. #26," a 1978 edition of Dow Chemical's Spot News newsletter, cited in this section and those that follow. There is no reason to believe that a landlord of a dry cleaner would have received Spot News; indeed, according to a dry cleaner operator deposed in City of Modesto. Dow sent Spot Neii•s only to its customers, which consisted of wholesale distributors not retail dry cleaners or laundry operators. 108 In fact, a product steward and industry development manager for Dow had no knowledge of this Spot News newsletter or its content, 109 and neither did an employee of a dry cleaning equipment distributor since 1967 . Further, the testimony of the L TL W tenants contradicts the notion that any of the L TL W operators engaged in any of the practices described in the newsletter.	
168	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	20	"Dry Cleaning Equipment Was Known to Leak" & "Insubstantial Leaks Were Known to Cause Significant Discharges." The documents cited by the Regional Board in these categories discuss concerns with evaporated solvent harming workers, and drips of liquid solvent from leaky machines that could then evaporate, not liquid discharges that would contaminate groundwater. For instance: • "Staff Report Ref. #4, Dow, Spot News, 1958" (City of Modesto Ex. 13) states: "It is very possible for a slow leak to develop, and solvent can actually be dripping to the floor ... drop by drop, without showing a wet surface, because each drop evaporates before the second reaches the surface." • "Staff Report Ref. #12, PPG Solvent News, 1970" (City of Modesto Ex. 26) discusses safety issues relating to PCE vapors, not liquid discharges threatening environmental contamination. • "Staff Report Ref. #17, Dow, Spot News, 1973" (City of Modesto Ex. 88) contains an article to dry cleaners about how to get "good mileage" out of their solvent. The article indicates that a leak of one drip per second could result in a loss of half a gallon of solvent over the course of an eight-hour operating day. It does not state that the solvent lost over the course of a day would form a liquid pool, or that any of the lost liquid might result in a discharge into groundwater (or the sewer). • "Staff Report Ref. #18, PPG Per-Check, Operating tips for better dry cleaning, Solvent Conservation, 1974" (City of Modesto Ex. 404) is a checklist concerned with preventing harmful PCE vapors and meeting OSHA standards, not liquid discharges on the ground or even down the drain. • "Staff Report Ref. #25, US EPA, Control of Volatile Organic Emissions from Perchloroethylene Dry Cleaning Systems, 1978" (not a City of Modesto exhibit, but cited by in this section) is a report from EPA air emissions divisions about controlling air emissions of volatile organic compounds from dry cleaning machines using PCE. It does not address liquid discharges or related risks. Like the 1973 Spot	See Master Response to Legal Comments and Response to Comment Nos. 152, 153 and 163. Lahontan Water Board staff acknowledge that the potential evaporation of liquid PCE releases may create some challenges in recognizing leaks. However, the documents cited in the Staff Report clearly state that liquid PCE releases should have been recognizable and were known to potentially contaminate groundwater. For example, in *Staff Report section 2.2.4 Insubstantial Leaks Were Known to Cause Significant Discharges*, the USEPA, in 1978, describes the "presumptive norm" related to "existing percloroethylene dry cleaning systems",: including information relevant to coin operated dry cleaning facilities (USEPA, 1978 at pp.1-1 and 2-1) by stating, "There are two types of losses from both point and fugitive emission sources- liquid and vapor. Liquid losses can be detected by sight – the brown residue associated with a solvent leak is familiar to any operator." This "brown residue' or staining should have been recognizable at the Site as a potential release to environment. Liquid PCE releases to the asphalt in the Site's parking lot should also have been recognized by asphalt staining (i.e., dark discoloration of the asphalt). The commenter attempts to draw a distinction between, on the one hand "concerns with evaporated solvent" or "drips of liquid solvent from leaky machines that would then evaporate; and on the other hand, "liquid discharges that would contaminate groundwater." This is not a meaningful distinction because the test in United Artists is whether the prior owner "knew or should have known" that the "general activity" caused a "reasonable potential of discharge". The documents cited in the "Dry Cleaning Was Known to Leak" and "Insubstantial Leaks Were Known to Cause Significant Discharges" sections identify where PCE losses were known to occur and provide examples of how seemingly insignificant leaks lead to large volume discharges. The examples provided are consistent with the currently available data at the Site which indicate unauthorized releases occurred beneath the tenant space and in the parking lot area.

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				News item discussed above, this report notes that a leak of one drip per second could result in the loss of four liters of solvent in a day, but the report immediately thereafter explains that "[b]ecause of the volatility of the solvents, these liquid leaks are eventually evaporated to atmosphere." • Staff Report Ref. #68, PPG, Cleaner Cleaner Bulletin #13, Leak Detection (City of Modesto Ex. 93), focuses on evaporation, vapor leaks, effect of vapor on worker health, and methods of detecting vapor leaks; nowhere does it suggest that dripped solvent likely to result in liquid spills or discharges to groundwater. None of these documents support the Regional Board's allegations in the Proposed Order that Century 73 or Fox should have known of the reasonable possibility of a discharge to state waters that could cause a nuisance. Indeed, as with documents in the prior grouping, some of the documents in this category actually demonstrate that dry cleaners and their landlords would be unlikely to be aware of PCE contamination. For example, the 1958 edition of Spot News notes that solvents could drip on the floor "without showing a wet surface" which suggest that such drips, if any, would be difficult, if not impossible, for an observer to detect. In addition, as late as 1978, EPA was advising that PCE leaks from dry cleaners would evaporate to the atmosphere, which is the opposite of warning that leaks would leach into groundwater.	To the extent that this comment argues that liquid discharges were not known to threaten groundwater at the time, see *Staff Report section 2.2.6 Dry Cleaners Were Instructed to Bury Discharges or Allow Them to Evaporate on the Ground* for reference to Dow's 1971 MSDS which indicated the Disposal Method at the time was to "Bury away from water supply or allow solvent to evaporate to atmosphere at a safe distance from inhabited building". The 1971 MSDS clearly indicate liquid PCE discharges were known to potentially contaminate groundwater and threaten human health
169	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	21	d. "Dry Cleaners Disposed of Separator Wastewater Down Drains or on the Ground." "Dry Cleaners Were Instructed to Bury Discharges or Allow Them to Evaporate on the Ground,"and "Dry Cleaners Disposed of PCE Waste on the Ground or in the Trash." The Regional Board's citations in these three categories, which concern the pouring of separator wastewater down drains or disposing of wastes on the on the ground or in the trash, are irrelevant in this case, where the data show (and Regional Board alleges) that groundwater contamination arose from parking lot spills during delivery/transfer of PCE at the LTLW rather than from sloppy operating practices or sewer releases. In addition, even if other dry cleaners disposed of PCE on the ground or in the trash, there is no evidence that the tenants of the LTLW did so. Moreover, there is no evidence that the operators of the LTLW, let alone Century 73 or Fox, actually received and reviewed or even could reasonably be expected to have received and reviewed the manufacturer publications cited by the Regional Board. Indeed, there is no evidence that either PPG or Dow, authors of most of the publications, supplied PCE to the LTLW, and no evidence that the equipment referenced in other publications, such as the "1965 Class 2143 Martin Perclor-Saver Tumbler" and R.R. Street's "Puritan 4000-SRS Solvent Recovery System" operated at the LTLW.118 The Regional Board also inexplicably relies upon a 1982 publication (issued several years after the Baisleys gave away the coin-operated dry cleaning unit) that was geared to "plant[s] doing about 1,500 pounds of cleaning per week."None of these documents is relevant to determining what a landowner should have known about the possibility of groundwater impacts from a small mom-and-pop laundromat with a single, rarely used coin-operated dry cleaning unit.	See Master Response to Legal Comments, section III and Response to Comment No. 153.

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				The Staff Report relies on the deposition testimony of Thomas Opsahl, an employee of a dry cleaning equipment distributor, for the proposition that it was"[c]ommon sense, logic" that PCE found in a well must have been connected to PCE that was discharged "down the sewer lines. But, as the Regional Board acknowledges. it is clear from Opsahl's deposition that he did not learn of the PCE detections until October 1983. Opsahl's "20-20 hindsight" is not compelling evidence. The fact that, after groundwater was sampled in the early 1980s. Opsahl connected PCE detections to disposal of PCE by nearby dry cleaners tells us little about whether in the 1970s anyone "should have known" about the risk of groundwater contamination from dry cleaners before it was discovered. His testimony tells us even less about whether a landlord or its general partner should have known that an infrequently used coin-operated dry cleaning unit posed a risk of groundwater contamination	
170	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	22	e. "Ordinary Dry Cleaning Practices Led to Discharges." The Staff Report cites individual depositions from City of Modesto for essentially the same propositions already addressed in the preceding headings. Thus, for the same reasons, these references fail to establish that Century 73 or Fox should have known of a reasonable possibility of a discharge from the LTLW as alleged by the Regional Board, and much of their testimony establishes the exact opposite. In particular: • Nance testimony. The Regional Board cites this testimony from the operator of long-time dry cleaning business owner in an attempt to establish that it was common for dry cleaners to dispose of separator wastewater in the sewer, but that has nothing to do with the spill and contamination alleged in this case-i.e., a spill in the parking lot. It also appears that Nance did not have any experience with coin-operated dry cleaning units. Moreover, Nance testified that despite nearly 40 years in the dry cleaning business, he did not believe PCE was present in wastewater discharged to sewers, he was never told by local authorities that sewers leaked, his operations were inspected regularly by the state without any concerns being expressed, and he never observed any PCE being spilled during delivery. • Caulk testimony. The Regional Board cites this testimony for the proposition that PCE spills, leaks, and drips occurred from dry cleaning machine gaskets and seals, but it appears that Caulk believed that these leaks resulted in air emissions as opposed to discharges of PCE liquids. Likewise, there is no evidence that Caulk was familiar with coin-operated dry cleaning units. Despite his long history as a dry cleaning business owner and operator and as an employee distributing dry cleaning equipment, Caulk was not aware of groundwater contamination resulting from dry cleaning operations until the early 2000s. • Ramirez testimony. The Regional Board cites this testimony to establish that PCE "muck," or diatomaceous earth, was commonly disposed of in the trash, and that once a hose on the filter of some dry cleaning equipment ruptured, resulting in a spill. However, neither Hakansson nor Baisley indicated that they disposed of PCE muck in the trash, and such a disposal would have nothing to do with the type of discharge alleged here. In any event, the fact that Ramirez observed a single (indoor) hose rupture in his 21-year career in the dry cleaning business suggests that such occurrences were, at most,	See Master Response to Legal Comments and Response to Comment Nos. 152, 153, 163 and 167.

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				exceedingly rare, and it would be unreasonable to assume that a landowner should have known about them. • Wooten testimony. The Regional Board cites this testimony to further establish that dry cleaners disposed of PCE wastewater down the drain, and to show that a spill once occurred during PCE delivery. However, it appears that Wooten was only aware of potential air emissions associated with PCE during the 1970s and 1980s (and wore a mask to protect against them) but was not aware that PCE posed any other environmental hazard until the l 990s. • Suggett testimony. The Regional Board cites this testimony in support of its claim that dry cleaners disposed of dry cleaner PCE waste in the dumpster, 137 but again, that allegation is unsupported by the record and irrelevant to the alleged discharged. Suggett's testimony instead indicates that he believed that historical dry cleaner disposal practices were legal and "only recently" did he become aware of a dry cleaner's potential to contaminate soil or groundwater. • Landon testimony. The Regional Board cites this testimony in an attempt to show that dry cleaners disposed of separator wastewater into a drain. Landon's testimony was based on what could be observed "at a dry cleaning plant," not from observing a coin-operated dry cleaning unit at a laundromat, and concerns sewer releases not at issue in this case. Moreover, Landon testified that the industry did not become aware of potential soil or groundwater contamination until the early 1980s (after the relevant timeframe at issue in the case). • Mclemore testimony. The Regional Board cites this testimony to establish that dry cleaners disposed of PCE down the drain. His testimony was based on dry cleaner industry publications distributed by Dow to its customers, which largely discusses machine maintenance and potential sources of machine leaks. Not only is there no indication that a shopping center landlord and its general partner would have received such publications, but the publications themselves indicate that leaks are not readily discovered because PCE evaporates. • Beard testimony. The Regional Board cites this testimony to establish that it was common knowledge that dry cleaners disposed of separator wastewater down the drains or on the ground. Beard's testimony is irrelevant to the release alleged in this case. Moreover, Beard testified that regulatory agencies were approving sewer disposal until 1986 and that soil and groundwater contamination associated with dry cleaners did not become known until the 1990s.	
171	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	25	f. "PCE Manufacturer Evidence of Routine Operations Causing Contamination." The two citations in this section reiterate previously addressed points and are subject to the same distinctions described above. Further, the fact that some PCE manufacturers may have known of a particular "fact" does not establish what "common knowledge" a shopping center owner and its general partner would be expected to possess. In short, the City of Modesto testimony and documents cited in the Staff Report are inapposite because they concern (1) unknown types of dry cleaning units or dry cleaning units other than coin-operated dry cleaning units; (2) dry cleaning practices as to which there is no evidence in this case and unrelated to the parking lot spill that caused	See Master Response to Legal Comments and Response to Comment Nos. 152, 153, 163, 167 and 168. As stated elsewhere, the test in *United Artists* is not limited to actual knowledge, but includes whether a prior landowner “should have known” of the relationship between the activity and “a reasonable possibility of discharge.”

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				the contamination at the LTLW; (3) potential hazardous (e.g., from inhalation) other than groundwater contamination nuisances; and (4) information from time periods other than 1974-1979/1980. In addition, and most importantly, there is not an iota of evidence to indicate that any of the information and documents cited by the Staff Report were known to, or should have been known to, Century 73 or Fox.	
172	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	25	The record from *City of Modesto* not only fails to support the Regional Board's liability theory, it actually demonstrates that even dry cleaning industry insiders did not know that dry cleaning practices would result in PCE discharges that could contaminate groundwater. In particular: An expert consultant on dry cleaning matters, and president of a dry cleaning equipment manufacturer from the 1960s to 1982, testified that his understanding was that neither EPA nor California regulated disposal separator water before 1980, that it was his understanding that "during the early 1980s the industry became aware of possible soil in [sic] groundwater contamination from spilled [PCE]." (Landon) • A former dry cleaner operator testified that it was not until the early 1990s that he remembers learning that PCE posed an environmental hazard, though earlier he had begun wearing a gas mask because he understood the health hazard of inhalation. (Wooten) • An employee of a dry cleaning equipment distributor indicated he first learned of PCE groundwater contamination issues in the early 1980s, and did not recall any discussion in the late 1970s about activities his employer was undertaking concerning potential federal regulation of discharges by dry cleaners that may contain PCE. (Opsahl) • An employee of a dry cleaner manufacturer recalled that "even at that time [1986], EPA was still saying to the dry cleaning industry and dry cleaners separator waste water is not a problem, the amount is de minimis" and that "it would be quite unreasonable" to apply later-promulgated standards to earlier generations of operators. (Beard) • A Dow product steward and industry development manager, who worked for the company since the early 1980s, was unaware when the manufacturer first learned that PCE from dry cleaner operations could contaminate groundwater. (Hickman)	See Master Response to Legal Comments and Response to Comment Nos. 152, 153, 163,167 and 168. The cited testimony from Mr. Landon and Mr. Beard, concerning regulations, is irrelevant here, where a 1956 South Tahoe Public Utility District ordinance prohibited discharging various types of waste to any public sewer. The various types of prohibited waste included the following: "(g) Any water or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to human or animals, or create any hazard in the receiving waters of the sewage treatment plant. (i) Any noxious or malodorous gas or substance capable of creating a public nuisance." Mr. Opsahl's and Ms. Hickman's testimony regarding early knowledge is less credible, given that they worked for entities who were sued in the *City of Modesto* litigation. More credible sources include the neutral observers and publications cited in the Staff Report.
173	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	27	While the Proposed Order relies chiefly on the City of Modesto record, it also invokes the United Artists record, various historical ordinances from around Lake Tahoe, and academic publications from the 1990s and 1940s, to try to support its claims. The Regional Board's reliance on these materials is misplaced. First, the Staff Report cites the United Artists decision for the proposition that .. it was well known that PCE was a hazardous substance" from 1972-1980. It then quotes United Artists' reflection that '"[t]he record [in that case] indicate[d] that the dangers of dry cleaning solvents in general, and PCE in particular, became gradually known during and after"' that timeframe, and includes a block quote from the decision that lists regulatory actions from 1953 to 1980 that pertain in some way to PCE or dry cleaning solvents generally.	See Master Response to Legal Comments, section III; and Response to Comment Nos. 152, 153, 163 and167. Available information also indicates discharge to the sanitary sewer system and that data gaps remain after implementation of the preferential pathway investigations conducted to date. See Response to Comment No. 16 (incomplete preferential pathway investigation) and *CAO Staff Report Sections 4.14 Dischargers On-Site Preferential Pathway Investigations* and *4.2.3 Dischargers' and Other's Preferential Pathway Investigations* for additional discussion of preferential pathway investigation results and data gaps. For example, PCE contamination has been detected (1) beneath the former tenant space (soil and groundwater), (2) directly adjacent to the western perimeter of the former tenant space near the sewer lateral connection (soil, soil gas, and groundwater), and (3) within sanitary sewer backfill. Indoor air

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				Even assuming that the United Artists court's descriptions are accurate, they do not establish that a 1970s landlord or its general partner had reason to know of discharges of PCE to groundwater associated with a coin-operated dry cleaning unit. Most of the court's citations merely reflect a government agency's understanding that PCE solvent vapors posed an inhalation hazard, not a risk of groundwater contamination. The same is true of a 1969 report about the use of pesticides containing chlorinated hydrocarbons resulting in concerning bioaccumulation in birds and fish. Likewise, neither a 1975 Santa Clara ordinance prohibiting discharges of pollutants directly into the sewer system, nor EPA action in 1978 and 1980 to recognize PCE generally as toxic and potentially carcinogenic, evince a prevailing knowledge that dry cleaning activity inherently posed a reasonable possibility of a discharge to state waters resulting in groundwater contamination. Second, the Staff Report cites several local ordinances as "evidence [of] the common knowledge that industrial wastes, such as separator wastewater or cooling water from dry cleaning stills, could contain dangerous substances, requiring restrictions." That artful phrasing misleadingly suggests that dry cleaner wastes were known to be hazardous when the ordinances were adopted. The cited ordinances simply do not reflect that. In fact, the ordinances do not mention dry cleaning at all. Instead, they merely prohibit the discharge of industrial waste into sewers or the pollution of water supplies, without identifying what wastes were prohibited waste and what causes water pollution. In fact, none of the ordinances cited by the Regional Board indicate that it was common knowledge that there was a reasonable possibility that a rarely used coin-operated dry cleaning unit would discharge waste into waters of the state resulting in a groundwater contamination nuisance. A 1956 South Tahoe Public Utility District ("STPUD") ordinance prohibited anyone from "permitting" any "unpolluted industrial process waters" to enter "any sanitary sewer." As an initial matter, there is no indication that LTLW discharges to a sewer caused contamination, and so a sewer ordinance could not have put anyone on notice of a reasonable possibility of groundwater contamination at the site. In addition, it is far from certain that this particular sewer ordinance even applied to the LTLW as it is unclear that discharges from a single coin-operated dry cleaning machine in a retail laundry constituted "unpolluted industrial process waters." Further, a prohibition against permitting the discharge of unpolluted industrial process waters into a sanitary sewer (where it would presumably be conveyed to a treatment plant) does not constitute notice that PCE used by a dry cleaner would enter groundwater, let alone cause a groundwater contamination nuisance. Similarly, STPUD ordinance's separate prohibitions against sewer discharges that "constitute a hazard to human [sic] or animals, or create any hazard in the receiving waters of the sewage treatment plant," or any "substance capable of creating a public nuisance," are immaterial. The fact that it was unlawful to cause a nuisance does not establish "common knowledge" that infrequent filling or use of a coin-	sampling results also indicate remaining PCE sources are sufficient to create detectable PCE concentrations in indoor air despite AS/SVE system operation. These multiple lines of evidence indicate unauthorized discharges occurred within the former tenant space including to the sanitary sewer system. The preferential pathway evaluation associated with the sanitary sewer remains incomplete because 1) investigation activities did not include assessment of the pipes beneath the existing building to identify potential defects and no additional soil or groundwater sampling have been performed within the building since the initial investigation in 2004 which identified impacts to soil and groundwater, and 2) PCE mass was detected in the sanitary sewer conveyance system utility backfill along the western edge of the building, but no additional soil, soil vapor, or groundwater samples were collected along the off-Site alignment of the sanitary sewer conveyance pipe between the Site and Glorene Avenue.

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				operated dry cleaning unit at the LTLW caused a nuisance or posed a reasonable possibility of causing a nuisance. In citing the STPUD ordinance, as well as similar South Lake Tahoe ordinances, the Regional Board's approach is akin to arguing that a landlord should know its tenant was violating a noise ordinance merely because a noise ordinance exists. An ordinance restricting noise provides notice that causing noise may be unlawful; it does not provide notice that particular activities cause noise or that noise is occurring at any particular location. The two South Lake Tahoe ordinances cited by the Regional Board feature comparable general prohibitions and thus similarly fail to establish that it was common knowledge that dry cleaning activity posed a reasonable possibility of discharges to state waters that would cause a groundwater nuisance or groundwater pollution. Lastly, the Proposed Order cites academic articles published in 1991 and 1998, as well as a 1942 article in a trade journal, for the proposition that "[k]nowledge of the risks of contamination from chemicals disposed of on the ground or into sewers predated operations at the [LTLW] by decades or even centuries." These articles say nothing about PCE and do not even mention dry cleaning activities. Rather, they simply state that over time, scientists began to understand that certain conduct could cause groundwater contamination; they do not establish that such conduct occurred at the LTLW, or that Century 73 or Fox knew or should have known about such conduct even if it occurred. They absolutely do not establish that Century 73 or Fox should have known of the reasonable possibility of a discharge to state waters resulting in groundwater contamination at the LTLW.	
174	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	29	The Proposed Order departs from prior State Board precedents by seeking to impose liability based on mere speculation of a former landowner's knowledge. The Proposed Order departs from prior State Board precedents by seeking to impose liability based on mere speculation of a former landowner's knowledge. In re Logsdon, the State Board found a former landowner liable under Section 13304 because it "had or should have had knowledge of the discharges of waste at the site" based on his extensive knowledge of the potential for discharges from the particular industry. Similarly, in In re Stuart, the State Board found a former landowner liable because the threat of petroleum contamination from underground storage tanks was common knowledge in the industry in which both the landowner and tenant operated. While these cases pre-date the United Artists decision, they show that even prior to that decision, the State Board predicated liability under Section 13304 on compelling evidence that the former landowner knew of the possibility of a discharge drawing upon its own industry-specific experience. Here, Century 73 and Fox were real estate companies, there is no evidence that they were in any way involved in the dry cleaner industry, and any assertion that they should have known of a possibility of a discharge from their laundromat tenant is based entirely on conjecture.	See Master Response to Legal Comments, section III; and Response to Comment Nos. 152, 153, 163 and 167.

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175	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	29	The Proposed Order fails to explain how Century 73 or Fox "should have known" of discharges of PCE at the LTLW when compelling evidence indicates that no PCE discharges occurred during Century 73's ownership. Mrs. Hakansson has sworn, under penalty of perjury, that she is unaware of any PCE spills occurred during her tenancy the L TL W, which lasted from November 1973 to July 1976. Mrs. Baisley testified that no spill of PCE occurred during her tenancy at the site from July 1976 through the date she and her husband gave the coin-operated dry cleaning unit away in 1979 or 1980. As a result, it is more likely than not that a discharge of PCE occurred prior to the Hakansson or Baisley tenancies, during the period between May 1972 (when the Prupas lease first authorized dry cleaning at the LTLW) and November 1973 (when the Hakansson sublease began), and prior to Century 73 's ownership. which commenced in September 1974. That time frame would match the conclusions of Desert Research Institute, whose model (though flawed in other respects) indicates that spills at the LTLW commenced before 1973. It also would be consistent with unrefuted evidence that (a) PCE was spilled in the parking lot at the South Y Shopping Center, and (b) asphalt was not installed in the parking lot until 1974. Accordingly, a surficial spill between May 1972 and November 1973, when the ground was not paved, was more likely to reach the subsurface than one during Century 73's ownership of the South Y Shopping Center after September 1974. In light of the compelling evidence that any PCE spill at the LTLW predated Century 73 's ownership, Century 73 or Fox could not reasonably be expected to have known of the spill. A pre-November 1973 spill would not have been visible when Century 73 acquired the South Y Shopping Center in September 1974. As noted by the City of Modesto court, PCE is a colorless liquid and difficult to see once it has been released into soil. Moreover, in the early 1970s, subsurface environmental investigations were unheard of, so Century 73 and Fox could not be expected to have learned of the spill through such efforts. Even if, contrary to the weight of the evidence, the Regional Board concludes that the PCE spill at the South Y Shopping Center occurred during Century 73's ownership, it is unlikely that Century 73 or Fox could have observed it. Mrs. Baisley testified that the coin-operated machine was used infrequently during her tenure, and thus the solvent used in the machine was rarely replaced. Specifically, Mrs. Baisley testified that delivery trucks delivered solvent to the facility only three or four times during the entire period of the Baisleys' ownership of the laundromat business. Accordingly, unless Century 73 or Fox happened to be on-site on the one day of the year that the PCE delivery truck delivered solvent, they would have missed seeing any spill. Nothing in the Proposed Order explains the Regional Board's decision to completely ignore Mrs. Baisley's testimony on this critical point. In fact, the Regional Board repeatedly cites other aspects of Mrs. Baisley's testimony, so it is clear that the Regional Board believes her to be a credible, reliable witness.	See Master Response to Legal Comments, section III; and Response to Comment Nos. 152, 153, 163 and 167, which address the knowledge standard, credibility of witnesses, and the body of substantial, credible evidence that discharges occurred routinely during ordinary dry cleaning operations (solvent deliveries, equipment operation, disposal of waste in sewers, trash and on the ground). With regard to the argument that the installation of asphalt in the parking lot in 1974 was significant, we disagree because insufficient information is available to pinpoint the exact date(s) of the unauthorized release(s) that have occurred at the Site. Lahontan Water Board staff acknowledge that the asphalt installed in 1974, including the related stormwater conveyance system components, would affect potential contaminant transport (e.g., by transporting leaks or discharges of PCE onto the asphalt more efficiently to the stormwater system), but also recognize asphalt is not an impermeable material. Evidence (data) supports the conclusions that PCE spills onto the Site's parking lot surface 1) penetrated the asphalt surface to contaminate underlying soil and groundwater) and 2) were transported by stormwater/meltwater into the Site's stormwater conveyance system (i.e. drop inlets). In addition, the Staff Report demonstrates that it is reasonable to conclude that discharges at dry cleaner sites operated in the 1970s occurred through numerous mechanisms as a routine part of dry cleaning operations, including discharges from leaks, drips and spills associated with the dry cleaning equipment. In additional to spills on the asphalt parking lot during PCE deliveries at the Site, soil, soil gas, and groundwater data supports the conclusion that discharges of PCE occurred at or near the dry cleaning equipment.

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176	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	31	The Regional Board's assertion that Century 73 and Fox "should have known" of dry cleaner releases to groundwater is undermined by overwhelming evidence that in the 1970s, discharges to groundwater from dry cleaners were not commonly known. Indeed, one study indicates that PCE contamination from dry cleaners was first detected in the Central Valley in California in approximately 1984 as a result of state-mandated groundwater testing. A 1992 publication by the Central Valley Regional Water Quality Control Board indicates that groundwater contamination from dry cleaning operations in California was first discovered in the late 1980s. A publication of the State Coalition for Remediation of Drycleaners suggests the same. Moreover, the first cleanup and abatement order published by the State Board that addresses groundwater contamination caused by a dry cleaner was issued in 1989, upholding a 1988 regional board order. It is not credible to suggest, as the Regional Board does, that in the 1970s, a shopping center owner and its general partner would have or should have known of the reasonable possibility of discharges from a small, rarely used coin-operated dry cleaning unit present at a laundromat tenant space even though the state agency charged in 1970 with protecting the beneficial use of groundwater and preventing nuisances was unaware of the potential for dry cleaning contamination at the hundreds of dry cleaners across the state.	See Master Response to Legal Comments, section III; and Response to Comment Nos. 152, 153, 163 and 167 which identify evidence the former landowner should have known. We have considered both the 1992 report prepared by Central Valley Water Board staff member Victor Izzo and the State Coalition publication, but find that neither of those documents appear to have considered the numerous documents cited in the Staff Report. As a result, we find that the weight of the evidence supports the findings in the Order. By way of example, Mr. Izzo's report is primarily a compilation of data and dry cleaner interviews. (Izzo Report at p. 6, citing questionnaires, inspections, handling practices and soil gas surveys as the bases of the report.) As in the instant case, we find that a dry cleaner's statements concerning their knowledge of the likelihood of the potential for discharges and/or contamination are not credible, due to their potential liability. The Comment also references State Coalition for Remediation of Drycleaners' publications. The 2007 Chronology attached to the Comment is incomplete at best, and does not "suggest" the conclusion reached by the commenter. Another publication by the same organization concurs with conclusions in the Staff Report, finding that: Drycleaning solvents can be stored in drums or in tanks above or below ground. Spills or discharges of these liquids can contaminate soil and water. Cleaning solvents or waste containing solvents should not be poured on the ground or down the drain. These chemicals can seep into the ground from septic tank systems or leaking sewer pipes. Even small, unintended, or unknown releases from the operation of drycleaners can contaminate the environment. (https://astswmo.org/files/Resources/SCRD/Citizens-Guide-Drycleaner-Cleanup.pdf.) In contrast to the cited documents, the Staff Report relies on more neutral sources of information concerning the "reasonable possibility of discharges" and finds that the preponderance of the reasonable, credible evidence considered in this matter supports a finding that Fox should have known of the reasonable possibility of discharges of PCE from Lake Tahoe Laundry Works to waters of the State.
177	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	31	As the Regional Board recognizes, to establish liability under Section 13304, the Regional Board must establish "control" in addition to meeting United Artist's knowledge requirement. The State Board has long held that a landlord may be named as a discharger under Section 13304 only "[i]fhe knows of a discharge on his property and has sufficient control of the property to correct it." The Proposed Order states that Century 73 "had knowledge of and control over the activities occurring at the [LTLW] that caused the discharge and had the legal ability to prevent the discharge." As to Fox, the Proposed Order asserts only that Fox had "control over the activities occurring at the [LTLW]" and cites Fox's supposed "ability to	See Master Response to Legal Comment, section III; and Response to Comment Nos. 154 (ability to control) and 152, 153, 163 and 167.

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				inspect the dry cleaning operation." The Regional Board has not demonstrated by a preponderance of the evidence that Century 73 or Fox had control over the activities at the LTLW or the ability to prevent any discharge that may have occurred at the LTLW. The lease provisions cited by the Regional Board do not establish control over LTLW operations, and neither Century 73 nor Fox had any control over the delivery company that spilled PCE in the South Y Shopping Center parking lot. Moreover, regardless of any lease rights, Century 73 and Fox could at most only be expected to prevent contamination they knew or should have known about. As explained above, Century 73 and Fox did not know or have reason to know of any PCE being discharged into the environment from the LTLW's operations. Indeed, Century 73 did not acquire the South Y Shopping Center until after the spill in the parking lot occurred, and, unlike the landlord in the State Board's decision in In re Spitzer, Century 73 did not own the South Y Shopping Center at the time contamination was discovered many decades later. The Regional Board's reliance on the inspection provisions of the LTLW lease is also misplaced. In Resolution Trust Corp. v. Rossmoor Corp., a landowner leased its property (through a subtenant) to a gas station. During the time that the gas station operator rented the property, substantial gasoline and diesel fuel leaks occurred, potentially violating the Water Code and the lease and contaminating the plaintiffs neighboring property. The plaintiff brought a nuisance claim against the landowner who had leased the property to the gas-station operator. In finding that the landowner was not liable for creating a nuisance, the court specifically evaluated the circumstances under which a landlord has a duty to inspect for nuisances created by its tenant or subtenant. The court stressed that "[t]he landlord need not take extraordinary measures or make unreasonable expenditures of time and money in trying to discover hazards unless the circumstances so warrant. "On this basis, the court went on to conclude that there was no reason to find that the landlord should have known that its tenant's gas station operations had caused subsurface contamination of adjoining property. Here, spills of colorless PCE into an unpaved parking lot likely migrated to the subsurface before Century 73 purchased the South Y Shopping Center and would not have been detected by a reasonable inspection. As Resolution Trust demonstrates, Century 73 and Fox had no duty to undertake extraordinary measures, such as extensive and expensive soil and groundwater sampling, to discover any such latent, subsurface contamination at the property. That is especially true given that the risk of PCE contamination by dry cleaners was not generally known and subsurface environmental investigations were exceptionally uncommon in the 1970s. Indeed, nothing in the Regional Board's own investigation of the Regional PCE Contamination suggests that any of the 125 priority sources of PCE identified within the area impacted by the Regional PCE Contamination conducted subsurface investigations during the 1970s. As a result, neither Century 73 nor Fox could have prevented a	

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				discharge from the LTLW and thus they cannot be liable for cleanup under Section 13304.	
178	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	33	The Regional Board contends that Fox is liable as the former general partner of Century 73. [194] The Regional Board is mistaken. Under California law governing partnership dissolutions, Fox's liability as a general partner of Century 73 lapsed long ago. Century 73 filed a certificate of dissolution with the California Secretary of State in April 1990 and filed a certificate of cancellation in June of the same year.[195] Under California law, when a partnership dissolves and publishes notice of the dissolution in the newspaper of the county where its principal office is located, potential claimants are barred from bringing claims after four years from the date of the notice.[196] Given the passage of time, Fox has been unable to determine whether notice of dissolution was published in 1990, but in the Regional Board's case, it does not matter because the Regional Board received actual notice of Century 73 's dissolution no later than October 5, 2005. [197] Under longstanding precedent (and logic), there is no need for a partnership to prove it provided constructive notice of dissolution through a newspaper when the claimant received actual notice of dissolution.[198] Moreover, since at least 2008, California law has presumed that a person has notice of a limited partnership's dissolution 90 days after filing the certificate of dissolution or tennination.[199] Accordingly, Fox's liability as a general partner of Century 73 was discharged no later than October 5, 2005, and perhaps well before that.	See Master Response to Legal Comments, section IV.A.
179	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	34	The Proposed Order is improper because it seeks to impose liability on Fox in violation of the provisions of Section 13304(j) of the Water Code. That section provides that Section 13304 does not impose any new liability for acts occurring before January I, 1981, if the acts were not in violation of existing laws or regulations at the time they occurred." As the State Board has explained, "[l]iability for past discharges has been limited by Amendment 6 which provides that Section 13304 does not impose any new liability for acts occurring before the effective date of the Porter-Cologne Water Quality Control Act." The Regional Board concedes that the coin-operated dry cleaning unit was removed from the LTLW in 1979 or 1980. Accordingly, any “acts” relating to the use of that unit occurred prior to January 11, 1981, and thus Century 73 and Fox cannot be liable under Section 13304 unless they would have been liable under the version of the Section 13304 in existence prior to January 11, 1981.	See Master Response to Legal Comments, section IV.B.
180	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	35	By its plain language, Section 13267 authorizes the Regional Board to require investigation in the form of technical and monitoring reports, but it does not authorize cleanup and abatement orders. To the extent the Propose Order relies on Section 13267 to impose cleanup obligations on Fox, it exceeds the Regional Board’s authority and must be withdrawn.	See Master Response to Legal Comments, section IV.C.
181	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and	36,37	Without analysis, the Proposed Order assumes that Fox is liable under Section 13267 if it is liable under Section 13304. For the reasons set forth above, neither Fox nor Century 73 is liable under Section 13304,	Fox and Century 73 are properly named as dischargers as discussed in the Order. See also Master Response to Legal Comments.

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		Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works		and so, under the Regional Board's approach, neither is liable under Section 13267. In addition, neither Fox nor Century 73 is liable under Section 13267 for the independent reason that Section 13267 imposes liability on a different class of parties than Section 13304. Whereas Section 13304 holds liable a party that "caused or permitted" a discharge, Section 13267 imposes liability on a "person who has discharged, discharges, or is suspected of having discharged or discharging" waste. Under United Artists, Section 13304's use of the word "permitted" shows the Legislature was focused on a party's knowledge of a discharge, while Section 13267's use of active verbs ("discharged," "discharging") shows that liability under Section 13267 depends upon a party's affirmative conduct. Agencies are required to construe statutes in accordance with their plain meaning.209 If the Legislature had wanted Sections 13267 and 13304 to have an identical scope, it would have used the same words in both statutes. Conversely, when the Legislature uses different terms in provisions of the same statute, it is presumed that it intends that the different terms have different meanings. There is nothing in Section 13267's legislative history that suggests that the statutory language should be construed contrary to ordinary canons of statutory construction. Instead, the legislative history confirms that the Legislature was focused on ensuring, in both Section 13267 and its pre-1969 predecessor-statute, former Section 13055, that dischargers, past dischargers, and suspected dischargers were covered by the statute; there is no indication that the Legislature ever intended to require technical and monitoring reports from persons that "permitted" discharges by others. Construing Section 13267 in accordance with its plain meaning results in a sensible legislative scheme. Under Section 13267, the Regional Board may require actual dischargers-the most culpable and directly knowledgeable parties-to shoulder the initial responsibility and incur the up-front costs of investigating the extent of the pollution. Once those steps are completed, responsibility is spread under Section 13304 among both the dischargers and additional persons who permitted the discharge. By contrast, construing Section 13267 as imposing liability on a property owner for discharges caused by others would greatly expand the Water Code's reach. Under the Regional Board's approach, if landlords are covered by Section 13267 because they are deemed to be "dischargers" based on the activities of their tenants, then landlords also would presumably be required to file waste discharge reports under Section 13260 of the Water Code and to comply with any discharge and permitting requirements issued under Section 13263. The Regional Board's interpretation is especially concerning when it is read in conjunction with the Regional Board's apparent view that Century 73 and Fox are liable under Section 13267 because preexisting contamination migrated under the South Y Shopping	

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				Center during Century 73's ownership. Under that reading, a homeowner could similarly be held liable under Section 13267 as a "person who has discharged" contamination that passively migrates beneath her home from a neighboring factory. Had the Legislature intended to impose liability on a "person who owns property to which a discharge has migrated," it is hard to believe it would have chosen the words "person who has discharged" to achieve that result. Properly construed, Section 13267 imposes liability only on parties that are discharging, have discharged, or are suspected of having discharged wastes into waters of the state. As the Proposed Order does not even allege, let alone establish, that Fox or Century 73 engaged in any of those activities, they cannot be liable for preparing the investigative or technical reports required by the Proposed Order.	
182	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	38	Despite the fact that the Regional Board previously accepted the Superior Court's ruling and chose not to appeal it, the Regional Board now suggests that the subsequent decision of the Court of Appeal in *Sweeney v. Cal. Reg. Water Quality Control Bd.,* 61 Cal. App. 5th I 093 (2021), somehow narrowed Section 13267's requirements.	See Master Response to Legal Comments, section II (application of *Sweeney* to Water Code section 13267).
183	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	39, 40	Even if Fox were liable under either Section 13304, the Proposed Order would still be improper insofar as it purports to impose liability for the cleanup of contamination that did not originate from the LTLW. Again, the language of the statute is instructive. Section 13304 provides that 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, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall, upon order of the regional board, clean up the waste or abate the effects of the waste .... " As the Court of Appeal recognized in United Artists, this provision establishes that "a prior owner of property may be required to participate in the cleanup of wastes discharged from its property that resulted in ground water contamination." The court's description of the statute reflects the only natural reading of Section 13304, which is that a person who causes or permits a discharge of waste is responsible for cleaning up only "the waste" that they caused or permitted to be discharged. In Section 13304, the word "the" is used as "determiner," a '"definite article ... (the in English) that introduces a noun phrase and implies that the thing mentioned has already been mentioned, or is common knowledge, or is about to be defined'. " Here, the repeated use of the phrase "the waste" near the end of the passage refers back to the previously referenced "any waste" that the person caused or permitted to be discharged. Thus, while Section 13304 expressly authorizes the Regional Board to require a person to clean up a waste discharge that it caused or permitted, it just as clearly does not provide authority for ordering a person to clean up waste discharges caused or permitted by others. When, as here, the plain language of the statutory text is unambiguous, then the text is dispositive and there is no need for further construction.	See Master Response to Legal Comments Response (application of *Sweeney* to Water Code section 13267). See also Response to Comment No. 27 (other sources; joint and several liability). See also *Tesoro, supra*, 42 Cal.App.5th at p. 475 (discharge includes passive migration) and Response to Comment No, 81. Finally, the discussion on the terms “the” and “any waste” suggests that the Dischargers would only be responsible for cleaning up that portion of the commingled, regional PCE plume to which they contributed. They fail to suggest, however, what technologies exist that would allow them to discern which molecules of the plume are theirs or how they would clean up only those molecules. Indeed, that failed logic has been rejected time and again in State Water Board orders and case law, which hold that joint and several liability is appropriate where discharges have commingled. (See Master Response to Legal Comments, section I.)

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				Construing Section 13304 otherwise would mean that parties who permitted a discharge into waters of the state would effectively be jointly and severally liable for addressing both commingled and even un-commingled contamination from other sources. Had the Legislature intended to render parties found liable under Section 13304 jointly and severally liable for the full cost of remediating groundwater plumes originating from multiple sources, it surely would have used different language. Section 13304 makes no mention of joint and several liability, and there is no reference in the statute to cleaning up contaminated properties without regard to source. Instead, Section 13304 merely requires cleanup of "the waste" and abatement of the effects of "the waste" that the liable party caused or permitted to be discharged. When the Legislature wanted to impose expansive joint and several liability, it made that intent clear. As the City of Modesto court recognized, the Legislature incorporated CERCLA 's "joint and several" liability scheme into the Hazardous Substances Account Act ("HSSA"), but imposed a different liability standard under Section 13304 of the Water Code. Imposing liability on Fox for the cleanup of contamination originating from the numerous properties that caused the PCE Regional Contamination is inconsistent with the purposes of Section 13304. As the Court of Appeal in United Artists recognized, one of the purposes of Section 13304 is to ensure that "persons who profit from discharges (directly or indirectly) will bear the cleanup costs." Requiring Fox to clean up contamination that was caused or permitted by other parties means that numerous parties that profited from discharges-including parties that actually caused contamination through their own actions-will avoid liability for their activities. Far from encouraging "greater vigilance on the party of property owners" and deterring pollution, the Regional Board's approach would have the opposite effect, contrary to the statute's purpose. Even if the Regional Board were to somehow conclude that the remedial purpose of Section 13304 supported imposing draconian liability on Fox for contamination caused by others, the language of the statute still controls. As the Supreme Court has recognized, even a cleanup statute's broad remedial purpose cannot override the statute's text. Here, the statutory text clearly limits liability to cleanup of "the waste" the party caused or permitted to be discharged, and the Regional Board has no authority to impose liability beyond the statute's terms, even if it thinks doing so serves the statutes broader purpose. As explained in the attached Technical Comments, there is compelling evidence in the record that there has been no appreciable migration of PCE from the LTLW, and incontrovertible evidence that the Regional PCE Contamination is derived from multiple sources. Any order that seeks to impose liability on Fox under Section 13304 for that contamination would be unlawful.	

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184	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	42	It is unreasonable for the Regional Board to require multiple parties to complete overlapping work under separate orders following separate time schedules. If the Regional Board does not revise the Proposed Order to eliminate requirements for work relating to the Regional PCE Contamination, it should, at a minimum, make clear that the Proposed Order does not apply to contamination at or migrating from the Former Big O Tires and Fonner Norma's Cleaners Sites.	See Master Response to legal Comments, section I; and Response to Comment No. 27 (other sources; joint and several liability). The Lahontan Board encourages parties to work collaboratively to investigate and clean up commingled discharges.
185	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	42	The Proposed Order is unreasonable to the extent it requires Fox to perform work on properties to which Fox has no access. The "Required Actions" section of the Proposed Order requires installation of wells and remediation equipment throughout an area that is a 1 mile long and 1.5 miles wide. Moreover, the Proposed Order requires Fox to develop a "plan to evaluate and destroy any vertical conduits (e.g., water supply and/or monitoring wells) within the regional PCE plume that allow the downward migration of COCs" and a "plan to mitigate any threats to human health at the [LTLW] or off-Site via the vapor intrusion to indoor air pathway." Under those mandates, Fox would not only need to access property that it does not own, but it would then need to undertake intrusive work on those properties, including actually "destroy[ing]" property owned by others.	See Master Response to Legal Comments; and Response to Comment No. 18 (access to other properties).
186	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	43	It is improper and inappropriate for the Regional Board to dictate the contents or bounds of a CSM…. By the plain language of Section 13360 and in accordance with the State Board's own interpretation, Fox can comply with the Proposed Order's requirement that Fox prepare a CSM, but the Regional Board cannot dictate the "particular manner" by which Fox complies with that portion of the Proposed Order. By dictating specific assumptions that it requires to be in Fox's CSM, the Regional Board has exceeded its authority under the Water Code. Accordingly, the Proposed Order requires Fox to certify under penalty of perjury, and Fox's consultant to certify under penalty of law, that the Regional Board's CSM inputs are "true, accurate, and complete."...It would be impossible for Fox and its consultants to make such a certification where, as here, the Regional Board's CSM does not comport with known facts, sound science and, in some cases, the Regional Board's prior pronouncements.	See Response to Comment No. 6. (rejecting a flawed CSM is consistent with State Water Board Resolution 92-49). Water Code section 13360, which prohibits the Board from dictating the manner of compliance, is not applicable here where the Dischargers' CSM is flawed. See also Response to Comment No. 9 (new data makes prior statements irrelevant).
187	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	44, 45	The first paragraph of the Proposed Order includes the following sentence: "The presence of elevated levels of COCs in soil, soil vapor, and groundwater and the threat of vapor intrusion caused by these contaminants constitutes a public nuisance per se because the pollution occurred as a result of discharges of wastes in violation of the WC." The Regional Board's argument that the threat of vapor intrusion constitutes a public nuisance is not supported by law. Under applicable cases, "to be considered a nuisance per se, the object, substance, activity or circumstance at issue must be expressly declared to be a nuisance by its very existence by some applicable law. " The Water Code's definition of nuisance does not "expressly declare" threatened vapor intrusion impacts (or any threatened impacts, for that matter) to be a nuisance. Rather, to be considered a nuisance under the Water Code, the circumstance at issue must be injurious to health,	Existing levels of PCE in soil vapor exceed residential and commercial thresholds, thus posing a threat to human health ("injurious to health"), which is inherently an obstruction to the free use of property. See also Master Response to Legal Comments, section IV.B (discharges to waters of the State are a public nuisance).

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				indecent or offensive to the senses, or an obstruction to the free use of property. None of the cases cited in the Staff Report say otherwise. Accordingly, the language in the Proposed Order asserting that "threat of vapor intrusion" constitutes a public nuisance per se should be stricken, as should any requirements imposed under the Proposed Order on that basis of that erroneous legal conclusion.	
188	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	46	There is no legal or factual basis for the Regional Board's apparent prohibition against the use of bottled water as replacement water. The Regional Board mentions "environmental justice" requirements but cites no legal authority for its position. Nor does the Regional Board explain why any environmental justice requirements override the Water Code's provisions, which the Regional Board admits are satisfied by the provision of bottled water. More fundamentally, the Regional Board has not explained what environmental justice considerations are implicated by choice of water supply solutions in South Lake Tahoe.....Finally, Section 13360, discussed above, precludes the Regional Board from dictating the means by which any requirement for uninterrupted replacement water service must be met.	This comment is a red herring. Dischargers have repeatedly suggested that wellhead treatment is the appropriate remedy to the regional PCE plume. (See Comments 4, 94 and 99.) The Order does not explicitly rule out the provision of bottled water as a possible replacement water supply, but we observe that may be extraordinarily difficult and costly, given the vast number of impacted water connections that would need to be supplied water for all domestic purposes. See Response to Comment No. 8 (impacts associated with regional PCE plume). Resolution 92-49 requires that the Lahontan Water Board provide Dischargers with information regarding more economical measures. Bottled water, in the circumstances described above, would not be more economical.
189	Fox Capital Management Corporation	September 19, 2022 Re: Response to Cleanup and Abatement Order R6T-2022-(Proposed) for Lake Tahoe Laundry Works	47	Instead of simply ignoring its prior pronouncements, the Regional Board should align its conclusions with its prior findings. If it chooses not to do so, it must specify what compelling new data and information justify its change of heart.	See Response to Comment No. 9 (prior statements may be irrelevant, given substantial new data demonstrating the underlying factual bases for this Order).
190	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	1	Here, the statutory text clearly limits liability to cleanup of “the waste” the party caused or permitted to be discharged, and the Regional Board has no authority to impose liability beyond the statute’s terms, even if it thinks doing so serves the statutes broader purpose. As explained in the attached Technical Comments10, there is compelling evidence in the record that there has been no appreciable migration of PCE from the LTLW, and incontrovertible evidence that the Regional PCE Contamination is derived from multiple sources.11 Any order that seeks to impose liability on Seven Springs under Section 13304 for that contamination would be unlawful.12	See Response to Comment Nos. 6 (failure to delineate extent of discharge; flawed CSM); 8 (remediation is incomplete and fails to control the discharge from the Site); 22 (Site is connected to the regional PCE plume, including an uninterrupted plume of contamination from the Site to the Tahoe Keys, impacting multiple receptors); 27 (discussion of potential other sources and joint and several liability).
191	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	4	If the Regional Board does not revise the Proposed Order to eliminate requirements for work relating to the Regional PCE Contamination, it should, at a minimum, make clear that the Proposed Order does not apply to contamination at or migrating from the Former Big O Tires and Former Norma’s Cleaners Sites. [15]	See Response to Comment No. 18 (Big O Tires and former Norma’s Cleaners). See also Master Response to Legal Comments, section I; and Response to Comment No. 27 (joint and several liability for commingled discharges).
192	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to	5	The Proposed Order is unreasonable to the extent it requires Seven Springs to perform work on properties to which Seven Springs has no access.	See Response to Comment Nos. 18 (access to other properties) and 147 (provisions that depend upon ability to obtain access).

Comment No.	Commentor	Document	Page (Starting, Ending)	Comment[1]	Response
		Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site			
193	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	5	Accordingly, the Proposed Order requires Seven Springs to certify under penalty of perjury, and Seven Springs' consultant to certify under penalty of law, that the Regional Board's CSM inputs are "true, accurate, and complete." It would be impossible for Seven Springs and its consultants to make such a certification where, as here, the Regional Board's CSM does not comport with known facts, sound science and, in some cases, the Regional Board's prior pronouncements.	See Response to Comment Nos. 6 (Dischargers' flawed CSM) and 9 (prior statements based upon incomplete data are irrelevant).
194	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	7	The Regional Board's argument that the threat of vapor intrusion constitutes a public nuisance is not supported by law.	The Lahontan Water Board has the authority to require cleanup of discharges to background. (See Water Code § 13304; State Water Board Resolution 92-49.) State Water Board Resolution 92-49 makes clear that the intention of investigation and cleanup and abatement is to protect human health and the environment. Title 23 of the California Code of Regulations, section 2550.4, clarifies that this applies to all media, including soil vapor.
195	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	8	There is no legal or factual basis for the Regional Board's apparent prohibition against the use of bottled water as replacement water. The Regional Board mentions "environmental justice" requirements but cites no legal authority for its position. Nor does the Regional Board explain why any environmental justice requirements override the Water Code's provisions, which the Regional Board admits are satisfied by the provision of bottled water. More fundamentally, the Regional Board has not explained what environmental justice considerations are implicated by choice of water supply solutions in South Lake Tahoe.	See Response to Comment No. 188 (replacement water).
196	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	9	The California Supreme Court requires that the Regional Board "render findings sufficient both to enable the parties to determine whether and on what basis they should seek review and, in the event of review, to apprise a reviewing court of the basis for the board's action."[33] The "agency [that] renders the challenged decision must set forth findings to bridge the analytic gap between the raw evidence and ultimate decision or order."[34] Of particular importance here, an agency is required to provide a reasoned explanation for its change in position.35 The Regional Board has not met these requirements here. The technical conclusions set forth in the Proposed Order and the accompanying Staff Report do not align with the Regional Board's prior determinations on a number of important issues. As detailed in	The Lahontan Water Board has addressed each of the issues in this comment in detail. See Response to Comment Nos. 6 (failure to delineate); 44 (preferential pathways); and 27 and 58 (other potential sources). See also Response to Comment No. 9, explaining that prior pronouncements are irrelevant in view of substantial additional data. This Order relies on the currently available data, including the over 620 groundwater samples collected during the Regional PCE Plume Investigation by AECOM, which was necessitated by Dischargers' failure to comply with the 2017 CAO. See Response to Comment No. 9 (prior conclusions based upon incomplete dataset; Order based on available data)

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				the Technical Comments, the Proposed Order deviates from prior Regional Board pronouncements as to the cause of the contamination at the LTLW, whether the LTLW contamination has been delineated, whether appreciable LTLW contamination migrated off-site, whether leaking sanitary sewers served as a preferred pathway for contamination to migrate from the LTLW, and whether sources of PCE other than the LTLW contributed to the Regional PCE Contamination.[36] Instead of simply ignoring its prior pronouncements, the Regional Board should align its conclusions with its prior findings. If it chooses not to do so, it must specify what compelling new data and information justify its change of heart.	
197	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	10	Read together and "harmonized," these provisions indicate that the Water Board's authority to order investigations is limited to investigations into water quality, the exclusive concern of the statute as a whole. [43] Therefore, the Water Board cannot order an offsite, indoor air quality investigation to address vapor intrusion.	See Response to Comment No. 194 (authority to require vapor intrusion investigation and mitigation).
198	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	11	The Regional Board does not have the power to order investigation of offsite vapor intrusion based solely on the separate and inapposite definition of nuisance in Cal. Water Code § 13050(m). A legislature permitting that would be hiding a very big "elephant" in a very small "mousehole" indeed. [48]	See Response to Comment No. 194 (authority to require vapor intrusion investigation and mitigation).
199	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	12	The Regional Board is subject to California's Administrative Procedure Act. A complete administrative record includes: (1) The pleadings (2) [A]ll notices and orders issued by [an] agency; (3) Any proposed decisions by an ALJ (4) The final decisions (5) A transcript of all proceedings (6) The exhibits admitted or rejected (7) The written evidence; and (8) Any other papers in the case.	Dischargers suggest that the administrative record for the Lake Tahoe Laundry Works Order should include voluminous files pertaining to other investigations, other orders and other dischargers. We disagree. As a preliminary matter, the appropriate time for any discussion of the contents of the record is when the matter goes before the State Water Board via petition (Water Code § 13320) or before the superior court via petition for writ of mandate (Water Code § 13330), neither of which has occurred yet. The contents of the administrative record have no bearing upon the validity of the Order. The general rule, a hearing on a writ of administrative mandamus is conducted solely on the *record of proceedings before the administrative agency*. (Code Civ. Proc., § 1094.5, subd. (a) (emphasis added); *Toyota of Visalia, Inc. v. New Motor Vehicle Bd.* (1987) 188 Cal.App.3d 872, 881 [*Toyota*]; *Pomona Valley Hospital Medical Center v. Superior Court* (1997) 55 Cal.App.4th 93, 101 [*Pomona Valley*].) This limitation is a "fundamental rule of administrative law." (*Evans v. City of San Jose* (2005) 128 Cal.App.4th 1123, 1144.)

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200	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	13	Because the Regional Board claims in the Proposed Order that the PCE plume is "contiguous," "regional," and "originates at the [LTLW] site," the administrative record should extend to GeoTracker files on any site within the overlay of the Regional Plume be included in the administrative record. We define the boundaries of the Regional Plume based on the Regional Board's own demarcation in Figure 8 of the Proposed Order. At minimum, the scope of the administrative record should extend to scientific data, regulatory actions, communications, and all other documents listed on GeoTracker, including the GeoTracker pages for the LTLW site (Global ID No. SL0601754315), the Former Big O Tires site (Global ID No. SL0601729739), the Former Norma's Cleaners site (Global ID No. SL0601790916), the South Y Regional Contamination (Global ID No. T10000007984), and the historical South Y PCE contamination (Global ID No. SL0601794942).	See Response to Comment No. 199.
201	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	14	*First*, California's Administrative Procedure Act does not prescribe specific rules describing *how* documents must be referenced for inclusion in the administrative record. The language of the statute is broad and permissive. *See* California Government Code § 11523 (authorizing inclusion of "any other papers in this case"). Because the plaint text of the statute endorses a robust administrative record, it is implausible that relevant regulatory files should be disqualified on a procedural technicality. Inclusion via index and corresponding URL should therefore suffice at the comments stage to mark documents as eligible for the administrative record.	See Response to Comment No. 199.
202	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	14	Second, including copies of these documents as standalone exhibits would be burdensome and unreasonable. Attaching electronic copies would involve countless hours of downloading, compiling, and transmitting files when all these documents are already available on the Regional Board's public database. The administrative index attached as Exhibit 3 provides direct URLs to the referenced documents for efficient access with no added burden on the Regional or State Water Quality Control Board.	See Response to Comment No. 199.
203	Seven Springs Limited Partnership	September 19, 2022 Re: Seven Springs Limited Partnership's Response to Cleanup and Abatement Order No. R6T-2022-(PROPOSED) for Lake Tahoe Laundry Works Site	14	Third, in analogous contexts, California courts have included documents in the record where they have been similarly referenced in comment letters. For administrative records compiled in California Environmental Quality Act (CEQA) writs and non-CEQA writs, courts have construed Section 21167.6(e)(7) of the California Public Resources Code to mean that written evidence has been submitted "when the commenter has made the document readily available for use or study by the lead agency personnel." 55 Supplying a URL of the relevant documents in a comment letter makes them "readily available" for purposes of the administrative record under Section 21167.6(e)(7).56	See Response to Comment No. 199.
204	Fox Capital Management Corporation	November 14, 2022 Re: Supplemental Comment from Fox Capital	1, 2	On October 20, 2022, the jury in *City of Modesto* issued its verdict finding defendant manufacturers of PCE liable for having failed to warn downstream users of PCE of the product's risks. In particular, the jury found that "ordinary drycleaners would not have recognized the	See Master Response to Legal Comments, sections III & IV.F. and Response to Comment Nos. 152, 153, 163 and 167.

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		Management Corporation		potential risks," and that the manufacturers "failed to adequately warn or instruct regarding potential risks" and "knew or reasonably should have known that users would not realize the danger," among other things. Verdict Form, *City of Modesto*, Case No. CGC-98-999345 (filed Oct. 24, 2022), at 9, 12 (attached as Exhibit A) (emphasis added). Notably, the evidentiary record before the jury included at least nine of the same exhibits and testimony from five of the same witnesses whose depositions the Regional Board cites in the Proposed Order. The jury's verdict completely undermines the Regional Board's interpretation of the record in *City of Modesto* and makes it impossible for the Regional Board to continue to claim that the evidence from that case proves that retail drycleaners in the 1970s knew or should have known of the risks of PCE groundwater contamination from drycleaners. Without its avowed evidentiary foundation, the Regional Board cannot support its even more expansive claim that the owner of a shopping center in the 1970s (or its general partner) would have had the requisite knowledge of the risk of PCE discharges from a coin-operated drycleaner unit. *See United Artists Theatre Circuit, Inc. v. Reg'l Water Quality Control Bd.*, 42 Cal. App. 5th 851 (2019). Accordingly, Fox urges the Regional Board to reconsider its analysis of Fox's liability with respect to the Lake Tahoe Laundry Works site and requests that the Regional Board withdraw the Proposed Order as it relates to Fox.	

ATTACHMENT 2: MASTER RESPONSE FOR LEGAL COMMENTS

Response to Comments Memorandum dated August 16, 2023, Lake Tahoe Laundry Works, South Lake Tahoe, El Dorado County, SCP Case No. T6S043, Geotracker Global ID No. SL0601754315

Master Response to Legal Comments

I. Joint and Several Liability

Several comments assert that the Proposed Order unfairly puts the burden on LTLW Dischargers when there are other sites or other dischargers contributing to the regional PCE plume. For example, Comment 27 alleges contamination discovered from other sources along Shop Street and Industrial Avenue has not been fully characterized. This portion of the Master Response will explain that identification of other dischargers who have contributed to the legal plume is not necessary for the purposes of this Order due to joint and several liability, which is an established legal principle applicable to discharges of waste.

State Water Board precedent and California law establish that responsibility for cleanup is joint and several, so identification of other dischargers is not a release of Dischargers' liability. The Third District Court of Appeal recently confirmed that liability under Water Code section 13304 is joint and several in *Atlantic Richfield Co. v. California Regional Water Quality Control Bd.* (2022) 85 Cal.App.5th 338, 373-374. The *Atlantic Richfield* court concluded that "[n]owhere in the statutory language does section 13304 say the polluting entity must clean up or abate *only* its proportionate contribution to that waste." (*Ibid.*; see also *Barclay Hollander Corp. v. California Regional Water Quality Control Bd.* (2019) 38 Cal.App.5th 479, 484; and State Water Board Order WQ 90-2 (Union Oil Company of California), pp. 8-9 ["We consider all dischargers jointly and severally liable for discharges of waste"].) Joint and several liability applies where the releases originate from different properties or where the releases originate from the same property but at different times. (*Atlantic Richfield*, 85 Cal.App.5th at p. 373; see also *Tesoro Refining & Marketing Co. LLC v. Los Angeles Regional Water Quality Control Bd.* (2019) 42 Cal.App.5th 453, 475 [approving of the "State Board's definition of 'discharge' to encompass a continuous process—from initial leak to the ongoing process of contaminating soils and groundwater through the process of migration of toxic chemicals into a plume . . ."].) This is particularly true in this case, where Dischargers have submitted reports stating that remedial activities have removed over 900 pounds of PCE from the subsurface and an estimate of up to 3300 pounds remains, suggesting that a discharge of hundreds of gallons occurred. The appellate court in *Atlantic Richfield* also explained that a polluting entity "can seek contribution from other parties it believes also contributed to the pollution" to the extent that the entity "cleans up

more than its proportionate share." (85 Cal.App.5th at p. 374.) Here, the Order does not preclude Dischargers from seeking contribution from other parties they believe have contributed to the regional plume. The Lahontan Water Board encourages parties to work collaboratively to investigate and clean up commingled discharges.

Furthermore, in the event that data and analysis, including an updated CSM, provide substantial evidence upon which the Lahontan Water Board can name additional dischargers in the future, the Order provides flexibility to add additional dischargers. Consistent with State Water Board Resolution 92-49, issuance of this Proposed Order should not be delayed, in view of the known impacts and urgent need to protect and remediate drinking water supplies.

The potential for commingling with other potential sources of chlorinated hydrocarbons should be considered when developing investigation strategies. However, as explained above, identifying other chlorinated hydrocarbon sources does not release the Dischargers from their responsibility to fully define the lateral and vertical extent of contamination migrating from the Site, nor does identifying such sources mean that investigation goals have been met and LTLW's investigation can be considered complete. See Response to Comment No. 6 (CSM needs updating).

II. Consideration of Burden and Costs

Some comments ask the Lahontan Water Board to provide more information on how investigation costs were calculated for the cost summary table in Attachment B (5-Year Cost Estimate Scenario). For example, comment 100 asks for corrections to certain numbers in Attachment B and also requests more details regarding the calculation of project regulatory oversight costs. This portion of the Master Response will explain the requirement under Water Code section 13267, subdivision (b) that the Lahontan Water Board consider the burden and costs associated with the investigation reports required by the CAO. In addition to this discussion of legal principles, the Lahontan Water Board staff will also respond here to the interrelated technical aspects of specific comments.

As explained in the Proposed CAO, Water Code section 13267, subdivision (b) requires a regional board to consider the burden, including costs, of "technical monitoring or program reports" (e.g., the investigation and monitoring tasks) required by a section 13267 order. The burden "shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." (Wat. Code, § 13267, subd. (b)(1).) Additionally, the regional board must provide "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." (*Ibid*.) These requirements do not mean that a formal cost-benefit analysis is necessary. Nor do they require, as comment 183 suggests, that

the Regional Board must make specific findings that Fox engaged in "unauthorized activities." The liability of former landowners is a separate legal issue that is discussed below in Master Response section III.

In *Sweeney v. California Regional Water Quality Control Board* (2021) 61 Cal.App.5th 1093, the only appellate court decision to meaningfully construe this section 13267 requirement (as of May 2023), the court rejected the argument that a "formal cost-benefit analysis" was necessary and held that "section 13267 contains no requirement that a CAO include any type of weighing or cost-benefit analysis." (*Id.* at p. 1115.) The *Sweeney* court concluded that the CAO in that case had met section 13267 requirements because it: (1) "included dozens of findings to explain the need for the technical reports"; (2) described how certain activities "'adversely impacted beneficial uses at the Site including . . . fish spawning, wildlife habitat, and commercial and sport fishing'"; and (3) determined that "'[t]he burden of preparing technical reports . . . bears a reasonable relationship to the need for the reports and benefits to be obtained from the reports, namely the restoration of beneficial uses at the Site.'" (*Id.* at pp. 1114–1115.) In other words, the *Sweeney* court found that a narrative explanation of the burden and benefits of the required reports, without consideration of specific numeric costs, was sufficient to meet section 13267 requirements.

Here, the Lahontan Water Board has exceeded section 13267 requirements and has gone beyond the explanation and evidence set forth in *Sweeney*. (See Proposed Order, ¶¶ 54–59.) As the Proposed Order explains, the "[t]asks and details in the cost estimate (Attachment B) are not being provided as a directive and are not part of the requirements of the Proposed Order." (Proposed Order, ¶ 59.) Instead, Attachment B (5-Year Cost Estimate Scenario) is included in the Proposed Order to help Dischargers and the public understand the Board's consideration of the burden and costs associated with the investigation and reporting requirements of the Order. The Proposed Order includes all required findings, such as: (1) the "reports are needed in order to adequately delineate the extent and amount of waste discharged . . . and to facilitate compliance with implementing cleanup and abatement activities required by the Order"; (2) the benefits include "protecting an entire community from PCE" and protecting "the community's drinking water, both immediately and from threatened impacts that could occur in the future"; and (3) the estimated costs of approximately $6,600,000 to $11,100,000 "is reasonable in relation to the need for the reports and the benefits to be obtained." (Proposed Order, ¶¶ 55, 56, 59.) "Nothing more [i]s required under section 13267." (See *Sweeney*, *supra*, 61 Cal.App.5th at p. 1115.)

In response to the contention in comment 182 that the Board is precluded from relying on the *Sweeney* case, there is no legal basis for such a contention. *Sweeney* is a published opinion of the First District Court of Appeal. "All trial courts are bound by all published decisions of the Court of Appeal [citations], the only qualifications being that the relevant point in the appellate decision must not have been disapproved by the

California Supreme Court and must not be in conflict with another appellate decision." (*Sarti v. Salt Creek Ltd.* (2008) 167 Cal.App.4th 1187, 1193.)

III. Former Landowners and the holding in *United Artists*

Numerous comments make legal arguments regarding the precedent established by *United Artists Theatre Circuit, Inc. v. Regional Water Quality Control Board* (2019) 42 Cal.App.5th 851 (*United Artists*). To the degree that a response to these legal arguments is required, the Lahontan Water Board staff disagrees with the commenters' interpretation of *United Artists* and related law regarding the liability of prior or former landowners. The Lahontan Water Board's understanding and application of each element of the *United Artists* criteria is set forth in the Staff Report Supporting the Proposed Order. See Staff Report, §§ 2.1 to 2.7, including but not limited to:

- § 2.1 (Application of *United Artists*)
- § 2.2.3 (Dry Cleaning Equipment Was Known to Leak)
- § 2.2.8 (Ordinary Dry Cleaning Practices Led to Discharges)
- § 2.2.9 (PCE Manufacturer Evidence of Routine Operations Causing Contamination)
- § 2.4 (Site Specific Dry Cleaner Operations, Including PCE Deliveries and Transfers, Posed Potential for Groundwater Contamination)
- § 2.5 (Fox's Own Leases Establish Fox's Control)
- § 2.6 (Local Ordinances in South Lake Tahoe
- § 2.7 (Fox is Appropriately Identified as Discharger)

A short discussion of *United Artists* is included here to supplement the discussion in the Staff Report, but nothing here should be interpreted to contradict the Staff Report.

First, it is important to remember the exact wording of the key, relevant holding in *United Artists*:

> We construe "permitted" in section 13304 to mean that a prior owner may be named in a cleanup order if it knew or should have known that a lessee's activity created a reasonable possibility of discharge into waters of the state of wastes that could create or threaten to create a condition of pollution or nuisance.

(*United Artists*, *supra*, 42 Cal.App.5th at p. 887.) When comments paraphrase or summarize the holding from *United Artists*, there is a tendency for those comments to overlook or mischaracterize key elements. For example, comment 152 claims that the holding in this case was that "a prior landlord cannot be liable . . . unless it knew or should have known of the reasonable possibility of a discharge that would result in a groundwater contamination nuisance." This is incorrect. The following are all elements of the key holding in *United Artists*:

a) Prior owner "knew or should have known"
b) that its "lessee's activity created"

c) a “reasonable possibility of discharge into waters of the state”
d) of “wastes that could create or threaten to create”
e) a “condition of pollution or nuisance.”

Comment 152 attempts to write out of the *United Artists* holding the element captured by (b) above—that the prior landlord’s knowledge is tied to the lessee’s activity. Comment 152 also grossly mischaracterizes element (d) by asserting that the possible discharge must “*result in*” rather than “*create or threaten to create*” a condition of pollution or nuisance, the broader language of the Water Code. Finally, comment 152 improperly limits element (e) to “groundwater contamination nuisance” when the actual holding of *United Artists* made clear that the concern is with any “condition of pollution or nuisance” related to actual or threatened discharges into waters of the state, which would encompass contaminants in soil, soil gas, or groundwater that pose threats to human health and the environment, including via the vapor intrusion pathway (See Cal. Code Regs., tit. 23, § 2550.4, subd. (g) [cleanup levels must include all media of exposure].)

Second, numerous comments attack the specific evidence cited in the Staff Report’s discussion of why Fox is liable as a prior landowner. As the Staff Report explains, the most credible, reasonable evidence in the record supports a finding that leaks and spills – discharges – were commonplace and visible to observers. Also, during the relevant timeframe, PCE was known to be hazardous to human health and was a regulated chemical which was present in separator wastewater and disposed of down drains or on the ground. It was also well known that sewers leak and leaks from sewers could cause groundwater contamination. This string of evidence is supported by the facts in the *United Artists* case, the *City of Modesto* case and additional sources cited in the Staff Report.

Lahontan Water Board staff acknowledge that evidence to the contrary exists, including a comment stating that “both of the tenants that operated the LTLW during Century 73’s ownership of the South Y Shopping Center have provided sworn statements that they had no knowledge of any PCE spills at the LTLW.” (See Comment 163.) In weighing the credibility of these witnesses, however, both of whom may have faced threats of litigation and personal liability, we find the more compelling evidence to be the witness statements of impartial observers, including equipment repairmen and manufacturers, who acknowledged the frequent discharges that occurred as a result of ordinary solvent handling practices and operations at dry cleaners. (See, e.g., Staff Report, §§ 2.2.3, 2.2.8 and 2.2.9.) Apart from these two sworn statements by conflicted witnesses, Dischargers’ comments that there is “overwhelming evidence” of “widespread ignorance” of dry cleaner contamination in the 1970s is unsupported. (See Comments 153 and 165.)

Third, Dischargers argue that the Proposed Order needs to be supported by site-specific evidence of discharges, such as “eyewitness testimony” or “contemporaneous documents that either Century 73 or Fox actually knew of any discharge into waters of

the state from the LTLW." (See, e.g., Comment 163 and 170.) But existing law provides that circumstantial evidence is a permissible basis for a cleanup and abatement order. (See *Tesoro Refining & Marketing Co. LLC v. Los Angeles Regional Water Quality Control Bd.* (2019) 42 Cal.App.5th 453, 467 [affirming reliance on "circumstantial evidence" in finding liability].) There is no legal requirement that the Proposed Order only rely on "site-specific evidence" of knowledge of an actual discharge. In fact, *United Artists* specifically rejected the argument that "actual or constructive knowledge of an actual discharge or specific dangerous conditions in a lessee's operation" was required to find that a prior landowner "permitted" a discharge:

> [I]f an owner, who necessarily profits from the activities of its lessees, knows or should know of such a risk and chooses to lease to an operator of that type of business, the owner may properly be held responsible for any discharges that occur. [Fn. omitted.] The public has a strong interest in waste cleanup and relieving owners of liability shifts the costs to others or, if there are no solvent other responsible parties, to the public. To accept the trial court's reasoning and require actual or constructive knowledge of an actual discharge or specific dangerous conditions in a lessee's operation would excuse the owner from any obligation to mitigate the risk of discharge by, for example, supervising the lessee's activities or imposing contractual requirements on the lessee with respect to any discharge. The trial court's standard also encourages owners to remain ignorant about tenants' specific activities, which decreases their opportunities to prevent discharges.

(*United Artists, supra*, 42 Cal.App.5th at pp. 880–881.) Here, where the Staff Report provides overwhelming evidence concerning the propensity of dry cleaning activities in the relevant timeframe to lead to leaks, drips, and spills – discharges – and the state of general knowledge in that same timeframe regarding the hazardous nature of PCE and the propensity of discharges to occur through routine dry cleaning operations (delivery, operation of dry cleaning equipment, disposal of waste), we find there is substantial evidence supporting each element of the *United Artists* rule. Using Dischargers' own arguments that a preponderance of the evidence must weigh in support of the Order's findings – and we agree that is the law – not only does the preponderance of the evidence weigh in support, virtually *all* of the evidence supports the Order.

Contrary to what Comment 169 argues, the Lahontan Water Board does not need to prove that the former landlord (or operator) read any of the documents cited in the Proposed Order. Rather, the inquiry is whether they knew or *should have known* of the "risk of a discharge." The documents are evidence of the general state of knowledge during the relevant timeframe. In response to the inquiry of whether the former landlord knew or should have known of the "risk of a discharge," the documents uniformly evidence the risks of leaks and spills from equipment, discharges from equipment to

drains, discharges during delivery operations, and dumping of separator wastewater and other dry cleaning waste on the ground. There is substantial, credible evidence upon which to conclude that a landlord knew or *should have known* there was a risk of discharge from these operations.

As the Court found in *United Artists*, "the term 'permitted' is expansive enough to encompass a situation where a landlord let a discharge occur by allowing an activity to take place, where the landlord knew or should have known the general activity created a reasonable possibility of discharge." (*United Artists, supra,* 42 Cal.App.5th at p. 888.) Moreover, the Court held that "nam[ing] such owners in cleanup orders elevates their interest in mitigating the risk of discharges of wastes by lessees—and landowners are in a position to prevent such discharges." (*Ibid.* [citing *Leslie Salt Co. v. San Francisco Bay Conservation etc. Com.* (1984) 153 Cal.App.3d 605, 617].) Here, we find that Fox's operations of the Lake Tahoe Laundry Works, from September 1974 to December 1985, was the majority of the time in which PCE was used and discharged from the dry cleaner, and Fox, having profited from the operation, must also shoulder the burden of the cleanup. (See *ibid.* ["Our construction of section 13304 also increases the likelihood that persons who profit from discharges (directly or indirectly) will bear the cleanup costs"].)

Finally, the remaining arguments related to prior landowners and *United Artists* in individual comments are addressed below.

Comment 154 argues that there must be evidence that "Century 73 or Fox could have prevented the discharge at issue." The Staff Report's *United Artists* discussion includes provisions of the lease that allowed the lessor the right to enter and inspect the property and contained a clause pertaining to "compliance with laws." Laws prohibiting nuisance applied during the relevant timeframe. The discussion also provides evidence that leaks and spills from ordinary dry cleaning operations were frequent and observable. Therefore, Century 73 or Fox could have prevented the discharge if they had terminated the lease (thus causing any additional discharge to cease) upon discovery (from an ordinary inspection) that discharges were occurring (as the evidence supports was readily observable).

Comment 166 appears to concede that dry cleaners, starting in the 1960s, commonly used PCE. The comment also admits that PCE was replacing a more-flammable and petroleum-based solvent, which a reasonable person could conclude is an indication that dry cleaners at that time knew the solvents used in their operations (whether PCE or its earlier counterpart) were hazardous chemicals that could create or threaten to create a condition of pollution or nuisance if discharged into waters of the state (e.g., groundwater). Century 73 or Fox could have decided not to lease to a tenant who was known to use hazardous chemicals in equipment designed to be connected to sewers or known to involve disposal of dry cleaning waste on the ground.

Comment 167 argues that (i) documents from the 1940s and 1950s and (ii) documents concerning inhalation and skin hazards are not relevant and do not support the Proposed Order. The relevant time period for the application of *United Artists* is September 1974 to December 1985, when Fox (the former landowner) owned the Site. Information available in the 1940s and 1950s was therefore available to Fox at this later timeframe. The relevance of the harmful nature of PCE goes to several points: 1) the fact that discharges of PCE create a public nuisance, which has been outlawed in California since at least 1872; and 2) the knowledge that a tenant's facility was utilizing hazardous chemicals heightens the responsibility of the landowner to ensure that such hazardous chemicals are handled properly, so as to avoid creating a nuisance.

United Artists itself includes a helpful summary of information on the potential for hazards associated with discharges from dry cleaners. (See Staff Report, p. 4 [quoting *United Artists*, *supra*, 42 Cal.App.5th at pp. 861–862.)

Comment 174 cites to State Board precedent in In re Logsdon and In re Stuart. The only relevant standard concerning knowledge of former landowners is that of *United Artists,* which considered these and other contradictory State Water Board Orders imposing strict liability. The comment may therefore be disregarded.

Comment 177 cites to *Resolution Trust Corp. v. Rossmoor Corp*. (1995) 34 Cal.App.4th 93 (*Rossmoor*). *United Artists* evaluated the applicability of *Rossmoor* to a similar factual scenario. In that case, the United Artists Theatre Circuit, Inc. cited to *Rossmoor* for the proposition that actual knowledge is necessary for a landowner to be held liable for a tenant's nuisance. But the court in *United Artists* distinguished *Rossmoor*, noting that its holding pertained to the question of whether a landlord acted negligently, "not on whether the landlord 'permitted' the discharges resulting the nuisance." (*United Artists, supra,* 42 Cal.App.5th at pp. 881–882.) The *United Artists* holding further noted that, had the question in *Rossmoor* been whether the landowner had sufficient awareness of the risk to give rise to a duty of care in the nuisance context (the question in this case) as opposed to negligence (the question in *Rossmoor*), the landowner would have been "subject to a section 13304 cleanup order." (*Id.* at p. 882.)

IV. Miscellaneous arguments

A. Liability of general partners

Comments 155 and 178 make a legal argument. To the degree that a response is required, the Lahontan Water Board staff disagrees with the assertion that Fox's liability as a general partner lapsed long ago for many reasons—including, but not limited to: (a) Fox's failure to provide evidence that notice was properly given as required by law when the partnership was dissolved (Corp. Code, § 15908.07(b)); (b) Fox's subsequent dissolution does not alter the fact Fox was in an existing general partnership at the time

its tenant created a reasonable possibility of discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance (see Corp. Code, §§ 15904.04, 15908.07(d)(3)); and (c) public policy weighs in favor of continuing to attach liability to general partners of dissolved limited partnerships that created a reasonable possibility of discharge into waters of the state that could create or threaten to create a condition of pollution or nuisance. The outdated cases cited in the footnotes of comment 178 are inapposite and not controlling because they do not involve a state agency's regulatory power to require investigation and clean-up of pollution of waters of the state.

B. Liability for pre-1981 acts

Comments 156 and 179 argue that Water Code section 13304(j) provides a shield to liability "for acts occurring before January 1, 1981, if the acts were not in violation of existing laws or regulations at the time they occurred." These comments ignore the fact that discharges of pollutants have been a violation of the law since long before 1981. Since 1872, California law has prohibited the creation or continuation of a public nuisance. (See Civ. Code, § 3490 [enacted in 1872].) Water pollution can constitute a public nuisance. (See *People v. Truckee Lumber Co.* (1897) 116 Cal. 397, 399 ["acts . . . of polluting and poisoning the waters of the river" is "a public nuisance"].) A successor property owner who fails to abate a continuing nuisance created by a prior owner is liable in the same manner as the prior owner. (See *City of Turlock v. Bristow* (1930) 103 Cal.App. 750, 755 ["Every successive owner of property who neglects to abate a continuing nuisance upon . . . such property, created by the former owner, is liable therefor in the same manner as the one who first created it"].) Additionally, since 1949, California law has prohibited the discharge of waste in any manner which will result in a pollution, contamination, or nuisance. (Health and Saf. Code, § 5411 ["No person shall discharge sewage or other waste . . . in any manner which will result in contamination, pollution or a nuisance"]; see Gov. Code, § 12607 [Attorney General may bring an action "against any person for the protection of the natural resources of the state from pollution, impairment, or destruction"]; Fish & G. Code, § 5650 [titled "Water pollution; prohibition; affirmative defense"]; see also State Water Board Order No. WQ 96-2 (County of San Diego); State Water Board Order No. 93-9 (Alcoa); State Water Board Order No. 93-17 (Lindsay Olive Growers).)

C. Alleged violations of Section 13267

Comment 157 argues that the Proposed Order violates Section 13267 by (1) "requiring cleanup and abatement in addition to technical and monitoring reports"; (2) imposing "liability on a party that has not discharged and is not suspected of discharging waste into the waters of the state"; and (3) not "properly assessing" the "costs and burdens" of imposed requirements. With regard to the first argument (see also Comment 180), the Proposed Order relies upon section 13304 to require cleanup and abatement and relies upon section 13267 to require the investigation and submittal of technical reports. In

the section titled “Legal Requirements – Authority,” the Proposed Order quotes section 13267 and section 13304 separately, and the Order is being issued to implement the policies of both sections. This is consistent with State Water Board Resolution 92-49. For the other arguments, see sections I (Joint and Several Liability), II (Consideration of Burden and Costs), and III (Former Landowners and the holding in *United Artists*) of this Master Response to Legal Comments.

D. Manner of compliance

Several comments argue that the Proposed Order improperly dictates how Fox complies with the Order. The Proposed Order is consistent with Water Code section 13360 and does not dictate manner of compliance, but rather requires Dischargers to propose workplans, providing great latitude to Dischargers to conduct cleanup in the most cost-effective manner, provided that it does so in a timely fashion, so as to protect drinking water wells and human health. Dischargers have the ability to present options for compliance as described in the Order. See *CAO Staff Report Section 7 Summary of Receptor Impacts* for discussion of the drinking water supply wells currently threatened, impacted, and impaired by the regional PCE plume. See also Responses to Comment Nos. 6 (delineation incomplete and necessary; flawed site conceptual model), 8 (remediation incomplete and necessary), 9 (understanding evolved over time; prior statements based upon incomplete data are irrelevant), and 95.

E. Liability under section 13267

Comment 181 argues that Fox and Century 73 cannot be found liable under section 13267 because sections 13267 and 13304 do not “have an identical scope” and section 13267 “imposes liability only on parties that are discharging, have discharged, or are suspected of having discharged wastes into waters of the state.” The Lahontan Water Board staff disagree. This legal argument would turn the Porter-Cologne Act on its head. The term “suspected” in section 13267 authorizes investigations of <u>potential</u> dischargers without the degree of certainty Dischargers demand. The legislative history shows the term “suspected” was added in 1992 to “enhance the Regional Water Quality Board’s ability to determine <u>if</u> spills and leaks have occurred” by seeking reports from “<u>potential</u> discharger[s]” because such “investigation is critical to the success of enforcement activities.” (Bill Analysis of 1992 amendment of Water Code § 13267 by Senate Bill 1277, Chapter 729, Statutes of 1992, at p. 2.) Dischargers’ position conflicts not only with this statutory text and history, but also the purpose and statutory scheme of the Porter-Cologne Act, which authorizes the Lahontan Water Board under section 13267 “to investigate <u>potential</u> threats to the quality of the waters of the state, including on an emergency basis,” so as to protect the public. (*Barclay Hollander, supra*, 38 Cal.App.5th at p. 501, emphasis added.) Moreover, Dischargers’ reading conflicts with the reasoning of *United Artists*, which cautions against any statutory construction that “encourages owners to remain ignorant about tenants’ specific activities,” as such a

reading “decreases their opportunities to prevent discharges” of waste. (*United Artists, supra,* 42 Cal.App.5th at p. 881.)

F. Jury verdict from *City of Modesto* case

Some of the comments reference a jury verdict from the most recent phase of the *City of Modesto* trial, pertaining to a Modesto dry cleaner, Vogue Cleaners.

First, the jury verdict in that trial has neither binding nor precedential effect here. (See *Sosinsky v. Grant* (1992) 6 Cal.App.4th 1548, 1568 [“neither a finding of fact made after a contested adversary hearing nor a finding of fact made after any other type of hearing can be indisputably deemed to have been a correct finding”].) Second, in contrast to a jury, the Lahontan Water Board has broad authority to consider any reasonable, credible evidence, and is not bound by evidentiary or other constraints inherent in the civil litigation context. Third, while Dischargers correctly note that the *City of Modesto* jury found that “ordinary drycleaners would not have recognized the potential risks” (Section E., Finding 6.D.), the jury also found that the product (PCE) “had potential risks that were known or knowable in light of the scientific knowledge that was generally accepted in the scientific community at the time of the manufacture, distribution or sale.” (*Id.* at Finding 6.B.)

See Master Response section III for a discussion of the *United Artists* knowledge standard and for references to the relevant portions of the Staff Report.