



February 11, 2016

Via email to: RB6enfproceed@waterboards.ca.gov

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Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Subject: Lake Tahoe Laundry Works' CAO Comments

Tahoe Keys Property Owners Association (TKPOA) has reviewed the proposed Cleanup and Abatement Order (CAO) prepared by the Lahontan Regional Water Quality Control Board (LRWQCB) for the discharge of chlorinated hydrocarbons from the prior Lake Tahoe Laundry Works (LTLW) Laundromat site at 1024 Lake Tahoe Boulevard, South Lake Tahoe to the groundwater. It has also reviewed the Final PCE Investigation Report South Lake Tahoe, California prepared by URS Corporation and dated January 19, 2016.

Neither the Proposed CAO nor the URS Report acknowledge TKPOA's history with PCE contamination entering its domestic water wells which are located down gradient from the prior LTLW site and the limited area that was investigated by URS. This letter provides TKPOA's experience and detailed comments on the Proposed CAO.

TKPOA EXPERIENCE WITH PCE

TKPOA owns and operates a domestic water supply that serves its 1,529 member properties with a population that varies between an estimated 1,200 during the low season to over 8,000 during the peak season. Approximately one third of the vacation rental properties in the City of South Lake Tahoe are connected to the Tahoe Keys water system. TKPOA also provides domestic water service to four non-member customers who are shown in Table 1. The total water production in 2015 was 258 million gallons.

The water is produced from three wells located within the Tahoe Keys development. The detailed locations and years of construction are shown on Table 2. The monthly water production is shown by well on Figure 1.

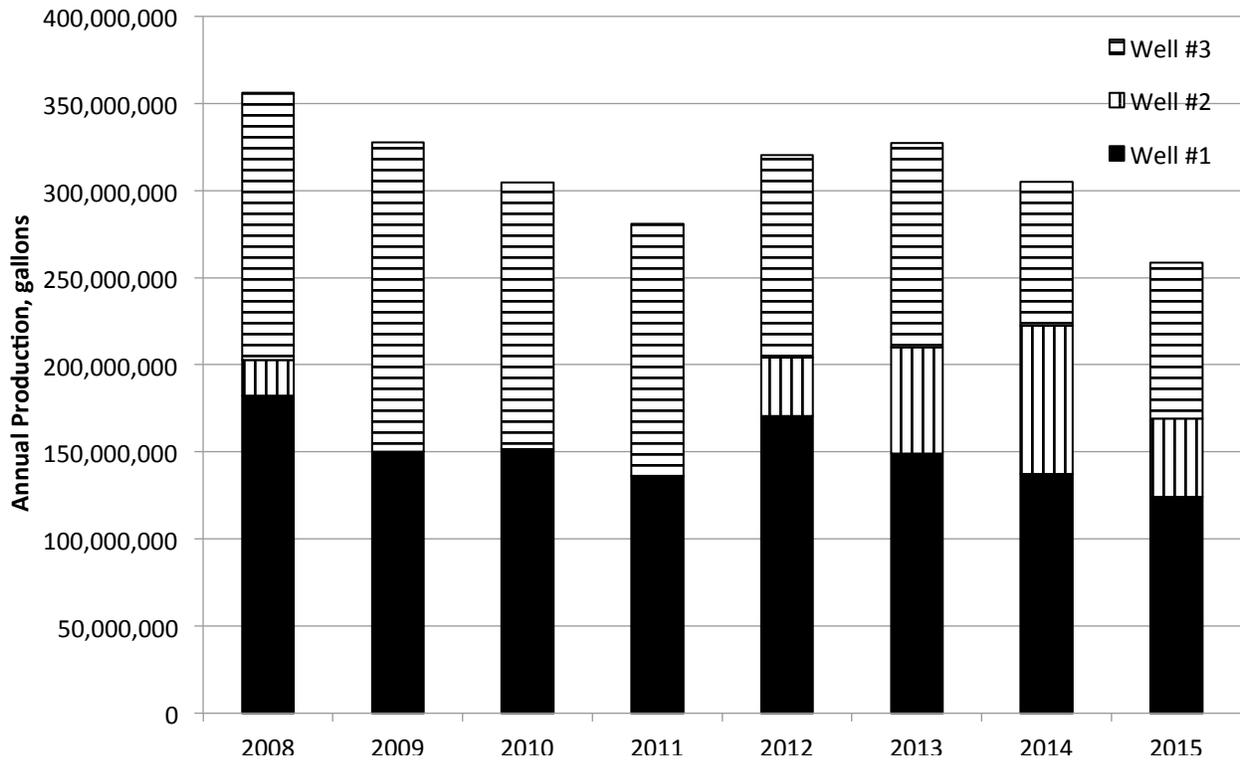
Table 1 Non-Member Customers

Non-Member Customers	Use	2015 Annual Consumption, gallons
Pope Beach State Park	Drinking Fountains, faucets, and Restrooms	297,000
Tahoe Keys Beach and Harbor Association	Restroom	6,000
Tahoe Keys Marina	Commercial (including a restaurant) and Light Industrial	2,800,000
Tahoe Keys Village	Commercial Offices	2,300,000
	Total	5,100,000
	Potion of Total TKPOA Production	2%

Table 2 Locations and Years of Construction for TKPOA Domestic Water Supply Wells

Well Number	Location	Year Constructed
1	Adjacent to 497 Ala Wai Boulevard	1961
2 ¹	Adjacent to 2086 Venice Drive	1972
3	West of 1799 Venice Drive	1983

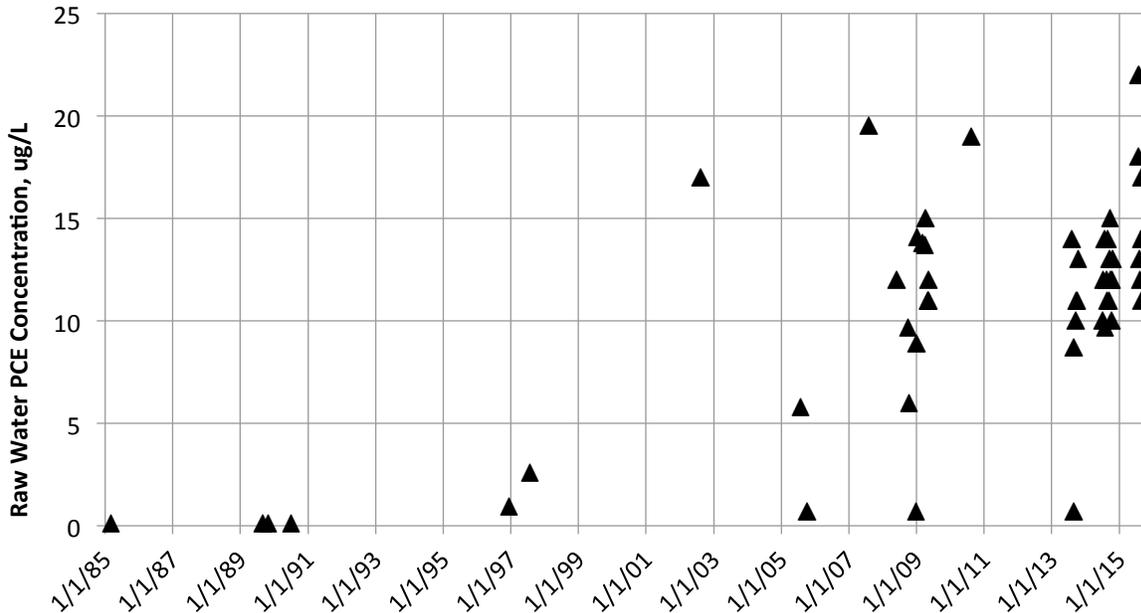
Figure 1 Annual Production by Well (2008 through 2015)



¹ The screens in Well #2 are located at 158 feet, 188 feet, 373 feet, and 433 feet below ground surface.

PCE has been observed in all three wells with the earliest observations beginning in 1996. There have been periodic observations of PCE at 0.5 micrograms per liter (ug/L) in both Well #1 and Well #3. Well #2 has PCE concentrations that have been consistently higher than the Maximum Allowable Contaminant Level (MCL) of 5 micrograms per liter (ug/L) since 2007. The historical PCE concentrations in Well #2 are shown on Figure 2.

Figure 2 Well #2 Raw Water PCE Concentrations² (1984 to Present)



The PCE in Well #2 was first observed in December 1996. PCE concentrations in excess of the MCL were first observed in 2008³. Well #2 was removed from service on July 2008 and remained idle until July 2012 following completion of granular activated carbon (GAC) treatment system⁴. Well #2 is typically operated during the peak season (June through September).

Well #2 is an important component of the TKPOA water supply. It is only needed to meet the peak season demands. It produced 20% of the total production in 2015. The trend in the average PCE concentration in the Well #2 raw water, shown on Figure 2, increased during 2015 (12 ug/L in 2014 and 16 ug/L in 2015). The highest concentration of PCE in Well #2 observed during 2015 was 22 ug/L. This information indicates that a plume of higher PCE concentration

² The PCE concentration data is from the State Drinking Water Information System (SDWIS), the United States Geological Survey (USGS), recent data from TKPOA that will be reported as part of the 2015 water system operating report, and SWRCB enforcement actions

³ One sample reported in 2002 showed elevated PCE concentrations but the PCE concentrations in subsequent samples were near the MCL.

⁴ The GAC filter installed on Well #2 has a rated capacity of 500 gallons per minute (gpm), which reduced the capacity of Well #2 from 2,000 gpm to 500 gpm.

entered the Well # 2 capture zone during July 2015. It also suggests that the front of the PCE plume has moved beyond Well #2.

In the event that the PCE concentrations increase at Well #1 and/or Well #3 then the only viable options available to TKPOA are to install additional PCE removal facilities or to seek domestic water service from the South Lake Tahoe Public Utilities District (STPUD). The first option will be very expensive from both a first cost and operating cost perspective. The second option is at the discretion of STPUD who may or may not have the capacity to serve all of the TKPOA customers.

TKPOA has incurred significant costs and will continue to incur costs related to elevated PCE concentrations in its wells. The costs of the past and future installation, operation, and maintenance of the PCE treatment facilities are summarized on Table 3.

Table 3 PCE Groundwater Contamination-Related Costs

Cost Type	Description	Cost
Incurred Cost - One Time	Construct and Install GAC Filter for Well #2 in 2012	\$270,000
	Construct Building to Protect GAC Filter per permit requirements in 2013	87,000
	One Time Incurred Cost Subtotal	\$357,000
Incurred Cost – Annual Cost	Replace GAC in 2015	\$61,000
	Operation and Maintenance 2012 – 2015 (\$25,000 per year)	100,000
	Annual Incurred Cost Subtotal	\$161,000
	2012 – 2015 Incurred Cost Total	\$518,000
Future Costs	Replace GAC Filter Equipment every 20 years (Present Value ⁵ of \$16,000 per year for replacement over 20 years)	\$218,000
	Replace GAC every 3 years (Present Value of \$20,000 per year for replacement over 20 years)	272,000
	Operation and Maintenance (Present Value of \$25,000 per year over 20 years)	340,000
	Present Worth of Future Costs	\$830,000
	Total Incurred and Estimated Future Costs of Well #2 PCE Treatment Facilities	\$1,348,000

COMMENTS ON PROPOSED CAO

Page	Paragraph	Comment
NA	NA	<p>PCE Investigation Report⁶</p> <ul style="list-style-type: none"> The investigation was limited in both area and depth and did not adequately consider the extent of PCE contamination down gradient

⁵ Present value calculation assumes equal annual costs and 4% average annual interest rate.

⁶ Final PCE Investigation Report South Lake Tahoe, California, URS Corporation, January 19, 2016.

		<p>from the LTLW site.</p> <ul style="list-style-type: none"> • PCE contamination in Lukens Wells #2 and #5 is noted; however, there is no reference to TKPOA Well #2 approximately 1,000 feet down gradient from the referenced Lukens wells and is known to be contaminated with PCE since 1996. The increasing PCE concentrations indicate that a PCE plume has entered to the Well #2 capture zone. • The report states that there are other sources of PCE, which contradicts the findings stated in the Proposed CAO. If this is the case then the recommendations should include further investigation to identify those sources. • The recommended limits for future studies are too restricted. The area of study should be expanded to include the three Tahoe Keys wells to the north and at least Tahoe Keys Blvd. to the East.
1	3	<p>This paragraph does not include a reference to TKPOA Well #2. The Proposed CAO indicates that the groundwater flow from the prior LTLW site ranges from N15°W to N25°E. The Dischargers contend that the predominant direction of groundwater flow is N15°W⁷. The location of TKPOA Well #2 is N20°W and approximately 6,000 feet downgradient from the prior LTLW site.</p> <p>The groundwater velocity varies from 1 to 2 feet/day⁸. At 1 foot/day, the groundwater would have traveled the 6,000 feet from the LTLW prior site to TKPOA Well #2 in 17 years. The first observation of PCE in Well #2 occurred in 1996. LTLW's dry cleaning machine was in service until it was removed in 1979.</p> <p>The Proposed CAO states that LRWQCB conducted an investigation into other sources of PCE in the vicinity of the South Lake Tahoe Y and ruled out other significant sources of PCE⁹.</p> <p>For these reasons, TKPOA requests that its Well #2 be considered for inclusion in this section as a municipal water supply well that continued to operate following the installation of PCE treatment facilities in July 2012.</p>
9	28 and 34	<p>The Proposed CAO should include a requirement for hydraulic control of the PCE at the prior LTLW site to prevent its continued migration down gradient.</p>
10	38	<p>For the above stated reasons, TKPOA requests that its Well #2 be considered for inclusion in this section as a municipal water supply well that continued to operation after the installation of PCE treatment facilities.</p>
12	46	<p>TKPOA requests that requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area</p>

⁷ Proposed CAO paragraph 14.

⁸ Proposed CAO paragraph 1.

⁹ Proposed CAO paragraph 22.

		in the vicinity of the three TKPOA municipal water supply wells.
15	Order 3.1	TKPOA requests that requirements to monitor PCE in impacted wells should include the three TKPOA municipal water wells.
15	Order 4.1	TKPOA requests that requirements to determine the extent of the PCE plume emanating from the prior LTLW site be expanded to include the area in the vicinity of the three TKPOA municipal water supply wells. TKPOA also requests that this determination be made consistent with the depth of the points of entry into the neighboring water supply wells.
16	Order 4.3.5	TKPOA requests that requirements to describe the depth of chlorinated hydrocarbons include the three TKPOA municipal water supply wells.

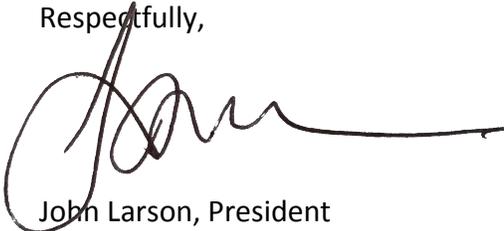
CLOSING

Thank you for the opportunity to comment on the Proposed CAO.

Resolution of the PCE contamination in the groundwater in the vicinity of the South Lake Tahoe Y area is of critical importance to the health of the Tahoe Keys residents and the future of the Tahoe Keys. TKPOA is both interested and willing to work with LRWQCB and other impacted water purveyors to effectively address the issue of PCE contamination of the groundwater.

If you have any questions regarding this letter or need any additional information please contact me at 925.360.6600 or jlarscon@larscon.com.

Respectfully,



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