

2016 GWMP Stakeholder Advisory Group Minutes

October 25, 2016
South Lake Tahoe, CA

Members Present

Ivo Bergsohn (IB) John Larson (JL2)
Brian Grey (BG) Ken Payne (KP)
Scott Carroll (SC)

Members Excused

John Thiel (JT) Jason Burke (JB) Rebecca Cremeen (RC)

Members Absent

Joey Keely Jenn Lukins Bob Loding
Harold Singer Doug Dame
Greg Daum Robert Lauritzen

Presentations

I. Bergsohn, STPUD J. Larson, TKPOA
E. Ingbar, Gnomon (Via Phone) G. Pohll, UNR-DRI
L. Dernbach, LRWQCB

Others Present

Michelle Sweeney, Allegra Communications
Richard Solbrig, STPUD
Brad Herrema, Brownstein Hyatt Farber Schreck (Via Phone)
Heidi Baugh, STPUD

OPEN FORUM

KP: Extended kudos to all involved in the Tahoe Valley South Basin Groundwater Management Plan group. Very impressed with the group staying on top of the grants and the outstanding example we are providing for others to model.

APPROVAL of MINUTES

- No one presented any changes or corrections to meeting minutes from May 27, 2016 Workshop 1. (Attachment 1).
- Meeting Minutes will be posted on the District's website.

South Y Groundwater Sampling (Lisa Dernbach, LRWQCB) - *note this item was added after the Agenda was final.*

Two issues on PCE contamination at the Y:

- Cleanup and abatement order for the former Lake Tahoe Laundry Works (LTLW) site. Potentially Responsible Parties (PRPs) have been operating under interim remediation plan. There is still off site PCE that needs to be investigated. RWQCB included in the Cleanup and Abatement Order lots of comments that were received during the comment period. The Order is currently under review. Lisa thanked everyone who sent comments. We are waiting



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for the Order to be issued. There might also be a public meeting held to discuss opening some of the more contentious aspects.

- RWQCB strongly believes there is a second source of PCE in the area that is 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. LRWQCB released findings in January and are currently waiting to do a supplemental study after the District's extraction well suitability investigation for Lukins Well #4 is completed. LRWQCB is also hoping for results of Tahoe Keys Water Company PCE survey. L. Dernbach (LD) is seeking to solicit SWRCB for additional funds for this supplemental PCE investigation that will be more focused along Emerald Bay Road, west of the "Y" to narrowing down the second inferred PCE source. LD anticipates LRWQCB to investigate deeper into the aquifer to find where it's migrating. The supplemental PCE investigation is envisioned to be performed during Spring 2017. Lisa indicated she could not release any information regarding the second source of PCE right now. Lisa will provide a snapshot map of the area to DRI.

2016 GW Management Activities (Presentation, I. Bergsohn, STPUD)

South Y Extraction Well Study

- Final report on this work was completed in June and has been posted on the District's Website. All Groundwater Management documents, activities, etc. to be migrated to the District's webpage, and building on this in the upcoming year.
- Ivo recommended that the group take a look at the Final Report Conclusions and Recommendations in Chapter 6, and also the Table of Extraction Well Alternatives (Table 6-1).

Prop 1 Funding/South Y Remedial Alternatives Evaluation

- A number of ideas for Prop 1 Funding were received from the SAG following the May Workshop. From these ideas it was proposed that the District move forward and conduct a Feasibility Study (FS) to identify the most cost effective means to remove PCE contaminant mass from the South Y Area; Lynn Nolan (LN) submitted a Pre-app for the FS on behalf of District, in partnership with LBWC and TKPOA in July. A copy of the Pre-App is provided as Attachment 2 of the Meeting Materials
- Two items we would like to obtain through the SAG:
 - 1) Statement of Disadvantaged Community Support (City of South Lake Tahoe and El Dorado County). Statement says, we recognize and support disadvantaged communities in our area. (General letter of support.) Please provide them to Ivo by mid-November so we can include all support letters with the final application which is due by November 28, 2016. Ivo has provided a sample letter with today's material. Draft final application is to be completed by Veteran's Day. Ivo will distribute the draft full proposal.
 - District is planning to do pre-sampling to compliment the sampling that LRWQCB is performing. There have been eight wells (public water supply wells in South "Y" area affected) identified from which to collect samples. (District's Clement Well site; Lukins Bros (LB) 4, LB 2, LTUSD Tahoe Valley Elementary School



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- well). We will combine these results and with the TKWC well monitoring to complete the current picture of contamination for the South Y area.
- Along with sampling and prior to the feasibility study, DRI provided a cost proposal for a fate and transport (F&T) model to work with District's existing model. This F&T model will simulate up to 15 remedial alternatives, provided by LB, TKWC, and STPUD.
 - The new F&T model will be a key component to assist in our feasibility study for determining the most cost effective alternative. We are looking to identify 3-5 most favorable alternatives. Criteria will be capability to contain plume, efficiency of mass removal, and clean up times.

GSA Formation Notification II (Attachment 3 – NOI)

- In September, the District held a Public Hearing to receive public comment regarding its election to serve as the GSA for areas within TVS Basin, outside its service area. Following the hearing the District submitted a second GSA Formation Notification to DWR. If there are no other GSA notifications submitted within the next 90 days, on December 28th, the District in cooperation with the El Dorado County Water Agency (EDCWA) will be the GSA for the areas that lie within the boundaries of the groundwater basin, but outside the District's service area. Submittal of the second GSA Formation notification and MOU with EDCWA will enable the District to manage groundwater across the full extent of the TVS Basin. This will also allow the District to implement its existing GWMP across the full extent of the TVS Basin, thus satisfying one of the primary requirements for Alternatives to GSPs. Should DWR accept the District's existing plan as a suitable alternative, an enormous amount of time and money could be saved, as the existing GWMP could be amended and used as an Alternative GSP. The MOU between the District and EDCWA is attached as Exhibit D, of Attachment 3 of the Meeting Materials.

GSP Alternative/ Analysis of Basin Conditions (Attachment 4 – GSP Emergency Regulations)

- The new GSP regulations allow for the submittal of an existing AB3030 GWMP or an Analysis of Basin Conditions as a potential Alternative to a GSP. The District is planning on submitting both the 2014 GWMP and an ABC for DWR review and evaluation. The ABC will be completed by DRI, using the updated TVS GW Model. The ABC must demonstrate that the Basin has operated within its sustainable yield over the past 10 years (2007 – 2016); without any undesirable results. These are defined in the GSP Regulations as;
 - Chronic Lowering of Water Levels
 - Reduction in Groundwater Storage;
 - Seawater Intrusion;
 - Degraded Water Quality;
 - Land Subsidence; and
 - Depletions of Interconnected Surface Waters
- With regards to Degraded Water Quality, the District is considering an analysis to show that operating together; the District, LBWC and TKPOA have sufficient water production capacity



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to satisfy all drinking water demands with the current levels of groundwater contamination within TVS Basin. As degraded water quality is the primary groundwater concern within our basin, the District requested feedback from the SAG on this approach, defining what is significant and unreasonable, and how to define a minimum threshold for this undesirable result.

- From The GSP Regulations, the definition of the minimum threshold for degraded water quality was presented to the SAG. IB explained that under the proposed approach, should the current level of groundwater contamination result in the total source capacity of PWS wells to fall below a minimum threshold, the groundwater contamination is at a level which threatens the ability of water purveyors to produce sufficient quantities of groundwater to meet all drinking water demands, and actions are needed to correct this result. SAG

Discussion:

- JL: Keys has spent about \$1mil to date, over the next 5 years will have to spend significantly more. What level of PCE do we need to get below to make this reasonable? No funding coming to TKPOA. Our property values are reduced, water supply affected.
- BG: initial off the cuff, seems like municipal wells are held to as cost of operation. Threshold seems to be that Tahoe Keys is threatened but not impaired. Meets the threshold of degraded water quality. Curious of potential funding in the future and whether they will help. More curious about individual well purveyors.
- JL: Well 2 designed to operate for 2-3 years. With that well off line, won't be enough water in the Tahoe Keys because that will happen during high demand period. What do we do then? 35 micrograms per liter on a medium basis. Landscaping would have to die; Tahoe Keys Marina would need to go off line. Pretty ugly future.
- Ivo: Is there a benefit to using concentration contours to defining minimum thresholds? Such as is the plume situated within a capture zone or source water protection area for a drinking water supply? What actions could Lahontan take to cause more effective containment and cleanup or mass removal of that? Would there be any assistance? How do you see Lahontan responding.
- BG: Information would have to be evaluated and investigations would be necessary. It would give them information but no i_____?.
- JL: I have worked for 12 years as an independent consultant on PCE contamination cases, this is the first one where no one has defined the plume.
- BG: information shown as within a capture zone. Level of information, level of previous investigations, make decisions and assign liability. We will always be left with unknown in these situations. In terms of added support and value, not giving us anything to point definitively to a party that we would need to define to finance the cleanup. Legacy situation of issues more than 20+ years after the damage has been done.



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- KP: Sounds like the program needs to be defined and developed in order to be enforced. Currently there is no program and no definition and therefore no way to enforce.
- IB: How do you recognize the difference between the threat to a 200 gpm or 1400 gpm well? Both are threats, but at different levels. How do we roll that into a minimum threshold? This is something that is being thought about. In the current situation, we could make a case that the water companies within the basin have adequate production to meet the current demands. There is degraded water quality, but it has not reached a level where it is significant and reasonable. If a community identifies it as a real problem, how does the local RWQCB recognize that? Does it cause the prioritization of “important” and qualify it with a need to go after, or we need to continue with our hands tied until a responsible party is found.
- RS: ... is an issue of boundaries and not ability to provide demand.
- IB: Minimum threshold needs to be a number. GSP is supposed to provide metrics. Could use one minimum threshold with numerous milestones. For example, added risk of water company solvency could possibly be a milestone; but not the threshold showing ability to provide adequate drinking water?

Expanded Outreach (Attachment 5 – IB Notes)

- SAG discussed considerations for expanding outreach to small community water systems and private well owners. Some of these include motels and lodges. Idea to possibly recruit someone from the tourist industry for the SAG in an effort to help increase public awareness for drinking water needs and develop materials to increase awareness in the community about its drinking water supply. KP “...may not want to engage the tourist industry too soon; First we need to have a management plan for the South “Y Area, after which would be a better time to bring them on board. Michelle S: Asked about the school board member position being left blank on the SAG member list. Another meeting attendee advised they have hired the former member’s replacement, Steve Brennan. Ivo will follow-up.

2016 DSWPA Mapping Update (Presentation, E. Ingbar, Gnomon)

- E. Ingbar provided presentation by telephone. Goal for Drinking Source Water Protection Map is so that everyone (general public as well as water purveyors) can see big picture. Maps are a great way to interest the public. Gnomon is currently working on map improvements—accuracy, i.e. verification, removing duplicate information. Part of the goal is for others to be able to maintain this map/information in the future relatively easily. To do so, there needs to be a data store that is easily maintainable and will include well locations, data, contamination information, spills, cleanups, new locations, etc. For this we need to define how we share information, what is okay for public to see and what purveyors want to see. Issues/Challenges include;
 - Staying current
 - Data Sharing and



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- Types of Sharing Results
- Ivo to send out the single page questionnaires by email to all SAG members; Summarize responses, return to SAG by email Once reviewed we hope to get results out to member agencies by December. DSWP map files to SAG member agencies (internal use). Will send arch project file to whoever would like to have it in order that you can interact and get an idea how it works and what the needs are. Give people in your agency a better idea so we can form the data sharing.

South Y PCE Investigation (Presentation, J. Larson, TKPOA)

- JL provided a brief update of PCE investigation and an overview of work underway and to be completed shortly. During work being done by District on LB Well 4, Tahoe Keys wanted to contribute to effort and compiled data for this area. A draft report has been generated. Conference call set for November 2. GEI Consultants compiled a data set – for which the Regional Board was a great help. Out of about 1000 total data points, only 249 were useful and also used soil samples from 5 sites. They also used PCE data from all three water purveyors. JL presented a map of the South Y Wells - Allows us to see a spatial review of data from south end (up gradient) to north end (down-gradient) going back to 1980's. Key issue: No sampling for up gradient wells (data gap there). Data gap in down gradient wells in the earlier sampling. Water purveyors' data is fairly complete. Maximum groundwater PCE concentrations follow groundwater flow direction.
- Most recent groundwater PCE concentration slide show approximate plume boundary that has probably changed over time as other wells in vicinity have stopped pumping. It was recommended we go down gradient and install multi-layer monitoring wells.
- Slide of vertical distribution--variant of PCE results. Tells us that PCE is heading to Tahoe Keys; it is at least in Well 2 and we have 2.7 micrograms in Well 1. We are discussing the possibility of operating Well 2 on a year-round basis in hopes of intercepting the plume and saving other wells.
- Findings are that due to other wells being taken off line, the PCE plume is heading toward the Keys and the Lake.
- In the opinion of GEI, LTLW is the source.
- Well 2 graphs show increase from 1989 to current use
- Well 1 (almost half of our capacity) graph shows increase of PCE from 1989 to current
- Need to fill in data gaps where possible; implement quarterly sampling; install new multi-level monitoring well. TKPOA is doing bi-weekly sampling and more.
 - IB suggested that multi-level monitoring well be moved up gradient of TKPOA wells for use as a sentinel well. GP asked about any other wells in the area.
- Ivo: would like to get the electronic files from GEI. JL indicated that Ivo should contact Ryan and request the information. Ivo will send those files to Greg at DRI.
- Ivo saving a copy of JL's PowerPoint.

GW Modeling Evaluation Update (Presentation, G. Pohll, UNR-DRI)

- Provide update on hydrologic analysis. Groundwater recharge analysis; working hard on analysis of basin conditions (ABC).



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- Using this model with other data to support that effort.
- Creating GIS tools to assist in reporting to DWR
- The Analysis area is larger than TVS GWB. Because most of the groundwater recharge flows from the upper regions surrounding the basin.
 - Precipitation – drives groundwater recharge in the area. We are basing our findings off data from four climate stations (FLL, Echo peak, Heavenly, Hagan's Meadows—most important in terms of describing what is accurately happening in the basin). We are trying to develop more simplified methods. Most precipitation occurs on the west side of the analysis area (75"/yr); on the eastern side (Heavenly Valley) it's 35"/yr. Get 334,000 acre feet per year, which includes both wet and frozen. 11-12% actually goes into the ground and becomes recharge.
- Average over the area, includes wet and frozen precipitation.
- Hagan's Meadow site from 1979 showed an average 31" at that station. Lots of variability.
- We will use this information to create a water year classification for use in reporting to determine type of year, i.e., wet year, dry year, etc. The other collection areas are not representative of the Tahoe area.
- Used Hagan's Meadow to develop estimates of groundwater recharge based on daily precipitation at all stations.
- Graph shows a much greater recharge than amount removed by groundwater pumping.
- Average recharge is 40,000 acre feet per year; pumping is about 8,000 acre feet per year. Most of the precipitation is falling on the west side of the basin. Less recharge is in the central area. 2016 pumping was 6,000 (down from 8,000) due to conservation.
- Presented 2010 recharge by season. Fall and winter minimal recharge. Most recharge occurs in spring. Some localized recharge during summer thunder storms.
- Updated groundwater model to include 2015.
- Analysis of basin conditions. Alternatives to a Groundwater Sustainability plan. Key point demonstrates operation within its sustainable yield over a period of at least 10 years. This will be fairly easy to prove.
- Describing a general outline of Basin condition report. Basin setting, then sustainable yield, then thresholds for components (levels, storage etc.) We need to define the minimum thresholds that define groundwater levels.
- By monitoring Hagan's meadows, if precipitation is above 10" we know there is nothing to worry about, but if it's less that's when we would need to monitor water levels at key locations to see if water levels are declining rapidly. Groundwater storage needs: –precip is 31-32"; if the precip decreases then groundwater storage use goes up and groundwater levels go down. Greg did not believe using 31-32" as the threshold was a good idea. We have to think about where on this curve we would settle. Change in groundwater levels is same as change in groundwater storage. We can discuss this further.
- JL asked about a projected curve for use. With TRPA growth restrictions Ivo feels it's very manageable. RS: our production has gone down over last years. We are investing in increased storage to deal with fire flow. JL indicated there should be an explanation rather than a flat line indicating use. Issues have to deal with tourism use rather than build-out issues.



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- Water Quality: PCE issues. Is the extraction contributing to the quality issue? Groundwater pumping in Keys and Lukins has accelerated or changed the flow of PCE contamination to some extent. From a total perspective if there were no boundaries the water supply in the basin can support the need.
- JL - The issue is a localized one, between Y and the Lake, to meet needs in that specific area due to this legacy groundwater contamination. Lukins pursued emergency funding and was denied because they had access to STPUD water. It will be the same with Tahoe Keys.
- IB - One of the funding options we are pursuing requires that we pursue cleaning up the aquifer and tying into another water source will not satisfy the funding condition. We need to get our heads around dealing with the problem--maybe a hybrid approach toward the bigger picture. I don't want us to have passed this threshold and we can't handle it, however there are significant impacts. For the grant, we saw the first step is how to best manage this problem. This exercise at hand will help up determine this.
 - Ken said there are two different groups that would address these issues
 - Grants group would review a feasibility
 - Compliance group would (cannot hear)
- IB - We are currently looking for best alternatives for the PCE issue
 - Very costly and long term effort. Important to inform responsible party regarding the road we are going down, and get their engagement.
 - District has not signed on for operation and maintenance for remediation, not sure who that would be, maybe the Water Board, or RP(s)?
 - GSAs were not envisioned to fill that role. Helping the process along is something we, as a GSA can do. But when it comes to actually putting it in the ground, operating and maintaining, we are not in a position to fill that role.
 - JL asked what the water quality objective is for Lake Tahoe with respect to PCE.
- GP - Subsidence is not an issue for our basin.
- GP- Interconnection with surface waters
 - Precipitation is over 300,000 AFY; average runoff is 124,000 acre feet per year. Used model to calculate for increased pumping and influence on streams. 1983 to 2015
- GP -Reporting tools
 - Quantify change to groundwater storage over time (change in groundwater elevation). We have the tool to do this, we just need to refine it. Would probably just apply one number to the entire basin.

Next Steps

For Greg to update 2016 water model, we need updated production numbers by November so it can go through October. Ivo will get that from Jjohn Larson and Jennifer, and lakeside. He will work to compile this info. Will write report in Jan/Feb and release in March. Must be completed and issued prior to April 1.

MEETING ADJOURNED (12:00 PM)

