

Meeting Minutes
Tahoe Valley South Subbasin Groundwater Management Plan
Stakeholders Advisory Group Workshop 2
Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

Attendees: See attached Sign-In Sheet

Open Forum

- No discussion

So. Y Remedial Alternatives FS

- Sachi Itagaki with Kennedy/Jenks Consultants (KJC) ran through items having to do with 2018 remedial alternatives investigation. Roles and levels of interest from SAG members regarding the feasibility study.
- Sachi referred to her handout as she provided a rundown of the summary.
- The feasibility study will have a separate Stakeholders Advisory Group (SAG) that will probably include at least some of the same members as the GWMP SAG members.
- Scope of work is large and identifies obligations of the State Water Board and South Tahoe PUD (grantor and grantee). Lots of administrative tasks, GPS coordinates and surveyed elevations to establish common datum between wells used to study groundwater flow, etc. There is a Quality Assurance plan related to how samples are collected; uploading project data to GeoTracker permitting and site access agreements related to the field work. She explained that the Technical Advisory Committee for the So. Y Remedial Alternatives would be independent of the full GWMP SAG.
- She discussed the MOU between the State and STPUD that we currently in the process of being worked out. STPUD's attorney has reviewed it and we are not starting discussions with SWB staff.
- Purpose of the Feasibility Study is to identify remediation methods that do not preclude interference with alternatives being considered by LBWC and TKPOA for their drinking water wells.
- Identifying alternatives (number and location of additional remediation wells), costs (both capital and O&M) of alternatives, looking at long term ramifications, develop Remedial Action Plan, etc.
- STPUD has done ongoing monitoring.
- Outreach is part of the Feasibility study. There will be outreach to this SAG and to disadvantaged communities. Included in the scope of this study is a total of six meetings to be used for outreach (meetings, workshops, webcasts).
- Technical Advisory Committee – part of scope between the State and STPUD. Grant is being administered from the State--Regional Water Board Tricia Carter). Responsibilities: they will provide input on monitoring & reporting program, Pre-Design Investigative (PDI) work plan, Feasibility Study work plan, and interim Remedial Action Plan.
- Stakeholders Advisory Group – will be separate from this SAG (will be referred to as the FS SAG). My include Forest Service, PDI site property owner (e.g. Stanford Alumni Assoc. or CSLT), interested parties (LT Laundry Works (LTLW) parties), and others interested in the very localized area that we will be concerned with. Need to



Meeting Minutes

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generate a list. (Scoped to conduct up to six meetings.) Those interested in participating in this SAG will be asked to provide feedback and comment on Feasibility Study. Initial interest show of hands: Jen Lukins, Rick Robillard, Ivo Bergsohn (IB). Will reach out to the Alumni Association, LTLW.

- Schedule-wise: hope to be able to do actual field work in the spring. Alumni Association – folks who volunteered their site to be used in this work, asked that we be done by April. In order to meet this request we will need to conduct field work in the winter. Work Plan draft should be pretty quick, feasibility study itself will be about 6-7 months after the work plan.
- Goal for schedule is to complete the FS in a reasonable time frame where the District would be well positioned to request funding for implementation dollars.
- Scott Ferguson asked what is the interaction between the TAC and the FS SAG; may consider combining FS SAG with TAC meetings to advantage direct interaction between these two groups; Why are there two separate groups?; this was a condition of the grant Agreement. if there was a particular reason that the GWMP SAG and So. Y Remediation SAG could not be the same group. Sachi didn't know of any specific reason and thought there could be efficiency in working them together.
- Ivo asked the group for ideas about how to go about when, where, how to pursue the public outreach aspect, i.e. where would be a good first engagement with public to roll out the project. Lisa Dernbach (LD) suggested Tahoe Valley Elementary School – high tide meeting so parents can attend. Especially since the work will be taking place in this neighborhood. Sachi asked if there was awareness already. Jen feels there is a general awareness; they know something is wrong but don't understand the who, what, how, when, where, and whys of it. Scott (CTC) would like to see more press on this (use of media—papers, radio, etc.). Since we are in the study phase it's a good time to get out ahead of this. John Thiel (JT) suggested bringing the media in for a discussion to get them involved to understand. Jen cautioned that this type of discussion with media **MUST USE A CAREFULLY CRAFTED MESSAGE** with a **FACT** sheet and map (LD), so they can very specifically see and understand what is going on, and so that there is no misinterpretation by the media. Challenge is to communicate message succinctly (JB)

South Y Activity Updates

TKPOA Phase 1 – (Rick Robillard (RR), TKWC Manager).

- Deals with groundwater and the PCE plume affecting 2 wells. Tahoe Keys Water Company (TKWC) contracted with KJ to develop a Facilities Plan to address the contamination. KJ put together Title 22 Requirements Standards and a plan for how to meet them, including alternatives if TKWC should lose their ability to meet water demands (serve water to its customers) due to PCE contamination. Currently one well is affected but has a filtration system on it, but its source capacity is being limited, but is potable. The Title 22 identifies how TKWC PCE contamination issues affect other stakeholders. KJ put together feasibility alternatives for moving forward.



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

Future projects, alternatives, etc. to deal with contaminants. Currently in the draft final stage of planning document.. Weighted matrix (short term/long term). Expect to be moving draft facilities plan into the final stage shortly. Once this is achieved they will hold a “town forum” to roll out the plan to the TKPOA who will be paying for it. RR expects this to be completed within about a month.

- Once plan and alternatives are decided, will move to engineering docs, etc.
- RR - all 3 wells are operational. In summer rely on all three wells to meet system demand. Have had PCE detections but not at levels that exceed limits.
- RR - Challenge for TKWC is going to be dealing with very significant costs-\$2.5mil to \$12mil in costs depending on the selected alternative.
- RR- TKWC has had detections in some wells that have not exceeded MCLs.

JEN –

- Approaching 90% on plans and specs for the work (Wellhead Treatment System at LBWC #5; abandonment at LBWC #2) at their 12th Street Well Site LBWC #2 and #5). Public notice will be going out today for the construction loan application for this treatment plant, subject to a three-month review. This will be a surcharge passed on to customers. We are hopeful that construction will take place this summer. In light of recent test results, staff engineers from the State will meet with SWRCB-DOFA to determine permitting issues at Well 5. Well No. 2 will be destroyed and we will apply to replace it, however we have not located a new site yet. The Feasibility Study will help determine the new site and how we will go about that process, i.e., placement and solution. Feasibility Study will consider all the replacement and relocation issues including location of new well, depth, migration pattern of plume and potential draw of contaminated plume by new well, etc. Jen reported that the State indicated to move forward and continue down the path they have taken, cautioning that a more extensive feasibility study may be needed so as not to draw the plume in a new direction and make matters worse. Harold Singer (HS) raised question about the implementation grant and whether it could be used to fund TKWC and LBWC efforts. Issue is timing of funding and need of water companies to have something in-place sooner rather than later. Use of implementation grant for these efforts could result in delay. FS will consider alternatives being considered by LBWC and TKWC; focus of FS is to select a remedial alternative that compliments LBWC and TKWC efforts (IB). Insurance is currently paying for clean-up at LTLW site (LD) Does LBWC have enough confidence in available data that would allow LBWC to identify a new well location? (JK). That will need to be considered during the FS (JL). J. Keely (JK) offered assistance should LBWC consider a site on USFS lands.

LRWQCB Report – (Brian Grey (BG)).

- Explained that there have been some organizational changes, one being that Laurie Kemper (Assistant EO) is retiring, and Doug Smith is new AEO; Jeff Brooks is now the Supervisor to whom Brian reports. Lisa Dernbach handling 445 project. Brian provided a brief chronology of recent work: CAO issued May 2012; Work Plan submitted July 26. It was considered an incomplete submittal and went into the public comment period. After the comment period closed they received additional



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

comments from Tahoe Keys (historical storm drain system). Responsible Party (RP) and Seven Springs petitioned, Fox's petition was thrown out, Fox filed separate suit against Regional Board. Phase 1 activities were conditionally accepted and went out 10/23/2017 and were completed as one continuous core boring and groundwater sampling. They remobilized on November 15, 2017 to do additional CPT/MIP screening. Only able to do one boring 42' at GW 1 location, November 7 advanced to 82' but experienced mechanical issues and demobilized. Rescheduled drilling for 12/26/2018. Due to holiday congestion the City nixed the 26th date for drilling; schedule has been pushed until after Holidays (January 7, 2018) Gregg Drilling is Drilling Contractor. Work Plan review -LRWQCB staff comment letter in draft and comments on revised groundwater are being reviewed. SB4.5 being investigated by Lisa Dernbach, known as the Westside PCE Investigation – when instigated 280ppb PCE was detected in Rockwater Well/Apartments on Emerald Bay Road and 10th Street. It is believed, because of the limited pumping (Sonny's BBQ), that the estimated PCE source was within a block. Submitted a scope of work to the State for funding to look for a source near the Rockwater. State encouraged us to expand the scope of work, which we did. The expanded SOW includes 10 monitoring wells, a soil vapor survey, possibly a tracer test and CPT/MIP survey near Rockwater Apartments area. Would also like to conduct an indoor air survey to determine risks to inhabitants. LD would like to conduct the Westside Investigation sometime during the spring 2018, to avoid summer season traffic. Challenge of pumping contaminated wells – Sampling costs are very expensive due to added costs for handling, treatment and disposal of contaminated water (JL).

So. Y Pre-Eval – (Ivo)

- IB Presentation - brief summary of results from Pre-Evaluation Sampling. 2016 District started conducting sampling and well assessment L4. In parallel, Tahoe Keys funded a study looking at occurrence of PCE in the South Y Area and compiled all historical data (GEI Study). Found numerous data gaps in sampling data and it was determined that the need to collect new groundwater water quality data was in order. Tried to collect new data from: LRWQCB data from existing monitoring wells, TKPOA Wells #1, #2, #3, LBWC Wells #1,2,4,5; Tahoe Valley School, Rockwater Apts, and from Clement Well site (CL-1); 7 Springs/Fox Capital Off Site Invest. Data compilation was provided to DRI to see if any changes were needed in the Fate and Transport Model. Collected data would provide a check against the contaminant distribution predicted by the model. Ivo ran through a series of slides summarizing and explaining sampling events. Questions asked about sampling methods and conditions of operations before and during sampling. Ivo explained that there were various conditions of operations or lack thereof surrounding samplings. There was discussion regarding geological and vertical gradient information relative to the sampling, as well as if these factors would be part of the FS. Sachi explained how and when these items would be factored in and how they would be used. Ivo said that to the extent that we can, he would like this information incorporated into the data. Another question was posed regarding whether this data has been brought into the model? Ivo explained the Model work is "on hold".



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

- IB presented slide showing GW flow direction from District Well data from the South Y Area; GW Flow directed to NNE; low gradient of about 0.008 ft/ft.
- Highest levels of PCE contamination found along east side of plume near intersection Eloise Avenue and 5th Street.
- Hi levels of groundwater contamination found in Rockwater Well (PCE > 100 ppb); LBWC#4 (PCE in 20 -50 ppb); and LBWC (PCE > 50 ppb)- extremely impaired source; TKWC #2 (20 ppb/influent treated); TKWC #1 (PCE about 2 ppb).
- PCE was not detected in LBWC # 1 and TKWC #3 wells.
- Vertical Distribution Plots – PCE Concentration versus Sample Depth- bottom screened interval in feet below ground surface. – Highest PCE concentrations in shallow wells found at LTLW site (25' depth); MW4b (50' depth); Rockwater Well (100' depth); lowest concentrations at greatest depths in TKWC #1.
- JK – all all results from pumped wells ?- Results are from three sampling events which included both grab samples using passive samples and grab samples from pumped wells, purging volume = 5 well volumes (IB).
- Offsite Inv. Results (EKI for 7 Springs/Fox Capital)- District requested sampling near Rockwater Well (west side portion of investigation) Vertical distribution plot: James Street samples show vertical extent of contamination on east side of plume (depths > 60 feet)- very high levels (PCE – 100 – 1000 ppb); on west side of plume high concentrations at deeper levels (PCE -100 ppb at 100' depths).
- Upper grouping – South Y eastside; Lower grouping – west side; could be interpreted as multiple plumes; however only a single source has been identified. More groundwater data is needed to better define groundwater flow patterns within contaminant plume; this is one of the objectives of the PDI. HS inquired about impact of geology and vertical hydraulic gradients on PCE distribution. Available data shows the vertical gradients are directed downward; geology will definitely be considered during the PDI, look at potential contaminant pathways from above 100 feet to PCE contamination found at LBWC #5 (IB).
- Jen – believes that a lot of the work will be valuable to LBWC during their engineering study; thanked Ivo for all his dedication and hard work and for all the information being pulled together and collected. Value from production wells without corroboration wells could be very misleading.
- JK – during PDI- consider the pumping time and screen length when comparing PCE concentrations between wells.
- LD- Recent sampling at LTLW site showed higher PCE concentrations; may be more realistic for actual PCE concentrations than samples collected from wells that are pumped continuously which may provide a diluted sample result.

2017I Owners Survey was conducted in order to

- IB Presentation - brief summary of results from 2017 Well Owners Survey (2017 WOS). Purposes 2017 WOS; 1) Inform well owners of Groundwater Management Plan activities occurring within our groundwater basin; 2) Introduce the District as the GSA update well owners on the work being doing with



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

groundwater management within the basin; 3) Help identify well owner concerns for inclusion in the TVS Basin Groundwater Management Plan; 4) Encourage well owner participation in our SAG (Identify interested domestic and community well owners); and 5) Confirm small community water system and domestic well locations. The survey occurred over a 6-week period from mid-August through September. Last couple weeks of this 6-week period consisted of assessing and organizing the information.

- The 2017 Well Owner Survey included parcels for a potential of 562 domestic well sites; and 58 other small community water system sites (shows number of sites surveyed/visited). He reported that we had 374 respondent sites (61% of inferred locations). Of these, 331 were domestic well sites; 43 were community and non-community well sites. Received responses to well on property from 247 respondents. Most of the respondents were property owners; largest majority were second home owners. Majority of second home owners occupied property between July and September. Likes – aesthetics. Majority concern from respondents is groundwater contamination followed by population growth and groundwater levels.
- The Survey was offered in person, via phone, and on-line.
- Ivo ran through the data collected and compiled from the survey.
- 93% of responders indicated that their private well was being used.
- Gathered quite a bit of information. We have a better and deeper insight in to owners and operators of these wells. This information will allow us to have a more focused outreach.
- There will be a write-up summarizing this survey information/data. We are having some difficulty pulling the information out of the ESRI software we used, but we are working on it.
- A question was asked regarding whether the survey included questions that would assist us in assessing potential demand. Ivo indicated that there was some information collected as to when and how much these wells are used which will feed into the demand information.
- Sachi indicated she would contact Jen so they could discuss possible outreach to any of the survey populous who might be in the South Y area.
- Ivo has additional ideas about possibly conducting a Phase 2 survey/outreach and trying to contact the sites we were not able to reach in the initial survey.
- JL- may want to consider offering water quality testing to well owners as part of expanded outreach.

Groundwater Resources Management

- Joey Keely (JK), Ecosystem Staff Officer & Research Coordinator at USFS, spoke. Provided some personal background and qualifications and introduced Nicole Bringolf, Hydrologist with USFS. They are working on inventorying water rights and uses side of things. Nicole has access to recent developments regarding usable documents, etc. Groundwater and Eco Systems Level 2, and Level 1 goes into



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

varying levels of assessments. Joe brought and presented a slide presentation that a colleague (Jaime Gough, WRU User Group) in Boise put together.

- Presented a slide show for how to use and access reports via USFS Water Rights & Uses (WRU) Geospatial Interface (GI). More Info – USFS Natural Resource Manager (NRM) at nrm@fs.fed.us
- Joey talked about other ways the system and resources could be used including populating database with well logs and water quality information.
- Also spoke to the idea of using USFS land for wells, or other water facilities needed, and the steps that have to be taken and considerations/checklists gone through prior to permission to use USFS lands.
- USFS has programmatic needs to assess impacts to natural resources from groundwater use; watch not only the USFS water resources, but those within a mile of the forest boundary because of the draw and cone of affect that is caused by any wells or groundwater uses on the peripheral. Impacts on seeps, bogs, fens, ponds, springs, etc. – groundwater bearing zones.
- When considering permits for new wells USFS considers alternative sources of supply outside USFS lands; current demands on natural resources; and changes to baseflow; declines in spring flows. USFS cannot direct applicant to conduct studies, but will provide comments where USFS has concerns where significant and should at a minimum be initially evaluated (e.g. vegetation, stream flows/fish).
- JK discussed current USFS efforts; SNPLA funding (reallocated 2012 returned funds through Tahoe Regional Exec. Committee to secondary projects); USFS-LTBMU submitted request for funding to; 1) second cycle of Angora Burn Area Monitoring; and 2) Water Uses and Protection. Water Uses and Protection would focus on completing inventory and analysis of water uses on lands within USFS-LTBMU; identification and assessment of Groundwater Dependent Ecosystems (GDEs); identification of water needs for watershed health and ecosystem sustainability, identification of surface water source zones and source water protection zones for groundwater and facilitation of conjunctive management of surface/ground water resources. Anticipate having funding available to start this work in 2018. Will also look beyond groundwater-dependent systems to balance of groundwater and surface water, and likely places USFS has allowed water access. They will be reviewing past points of diversion around the lake. They have a lot more work ahead to complete. To this point they have done mostly surface water investigations, and still have a lot of groundwater information to gather.
- USFS concern – development along stream courses has resulted in change from using riparian rights to groundwater (echo creek example). Focus is on impact of shallow wells (< 50 foot depth) on surface waters. Only community water systems are required to be metered. USFS stipulates water use conditions within permit; such as period of use; number of people per cabin and allotted water use.
- JK suggested that Sheryl Schumacher (USFS – Engineering) would be the contact suggested to Ivo to find out what information USFS can share. Ivo would like to have access to information pertaining to the Rainbow Tract which is in our groundwater



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

basin. NB noted that at Rainbow Tract, residents want to go to move away from using surface water and got to groundwater due to water quality concerns. For new special use permit, a meter may be required. Ivo will contact Nicole to get more information.

- JK- USFS-LTBMU inventory on surface water sources and springs is pretty complete; next focus will be on wells. Meyers Landfill – need to work on off-site investigation for feasibility study to address groundwater impacts from off-site plume. Strong restoration in stream meadows, including removal of conifers to restore groundwater levels.
- Question was asked by Ivo if the USFS is contemplating developing Groundwater Management Program of their own for USFS lands. And if so, how would they anticipate working with the local Groundwater Sustainability Agency? Joe indicated that the USFS has had a Groundwater Management Program since 1998. Have a public based website at national level that describes this program; <https://www.fs.fed.us/science-technology/geology/groundwater>. The USFS is not a regulator.

GWMP Report Updates

Alternative Submittals

- To close workshop today...
- District 12/2016 submitted Groundwater Management Plan and analysis of basin conditions to Department of Water Resources. Ivo heard that with respect to the SGMA they have two years from the submittal date to complete their evaluation. Last year they wanted to get it done within the first year, now it will not be until mid-2018. We are looking forward to receiving some feedback on our submittals.
- Our submittals will be deemed either “Approved”; “Incomplete” (to be corrected in timely manner (180 days)); or inadequate and thus “Disapproved”.
- Ivo has heard that if we receive an evaluation of “incomplete”, we would consider that a victory. We will work very hard to address the deficiencies.

Phase II Modeling Report

- DRI has been updating the models for our groundwater basin.
- We received a draft groundwater management report. Important sections are: Section 3 which addresses delineating recharge areas and how they change over time and space on a seasonal basis; capture zones within the groundwater basin; Section 4 that looks at pumping surface water – see changes in groundwater flux; Section 5 which focuses on climate change effects (simulations); and Section 6 which uses the model to look at potential changes and recommendations to augment the Basin Monitoring Program.
- Looks forward to sharing when complete.



Meeting Minutes

Tahoe Valley South Subbasin Groundwater Management Plan

Stakeholders Advisory Group Workshop 2

Meeting Date: Friday, December 15, 2017 (9 a.m. – 12 Noon)

Annual Report, 2017 WY

- This will be the first annual report that we are officially required to submit to DWR.
- Ivo wanted to thank Jen (LBWC) and Rick (TKWC) for providing their 2017 WY production data.
- We would like to get Lakeside Park Water's production data for 2017. Bob Loding agreed to provide this.
- Ivo reported that the 2017 Water Year was very wet...off the charts. Total precipitation greater than 60" which translates to 120,000 acre feet of groundwater recharge (estimated based on relationship between precipitations at Hagan's Meadow to groundwater recharge).
- Groundwater levels in the basin are up comparing to May 2016 groundwater levels a bit over 4.5' across basin on average.
- We will not do rest of data analysis. Due to DWR by April 1, 2018. Presentation to District Board presenting Annual Report anticipated during first quarter of 2018. Annual Report will be made available on District's website.

Meeting is adjourned.

