

Bolinas Community Public Utility District
A Meeting Of The Operations Committee of the Board Of Directors
December 4, 2019 270 Elm Road, Bolinas

1. Call to Order.

11:10 a.m.

2. Roll.

Directors Comstock and Smith present; General Manager Jennifer Blackman and Chief Operator Bill Pierce also present.

3. Woodrat Reservoir Rehabilitation Project – *Proposal from Moleaer Nanobubble Generator Technology.*

Eli Kirsch, limnology consultant, joined the meeting by telephone. Staff explained that the BCPUD Board has delegated to the Operations Committee the task of making a recommendation with regard to the Moleaer proposal. Director Smith said the nanobubble generator technology seems very promising and he therefore is surprised that no warranty is offered. Eli asked if he means a warranty on effectiveness of the technology or on the mechanical components. Director Smith said the latter – he said the proposal is confusing as there are references to “no warranty” and also to a “one-year warranty”. Eli said he is sure Moleaer will offer a one-year warranty on mechanical parts, but he will confirm that with the company. Director Smith noted that the proposal also refers to a free three-month trial period, yet elsewhere in the proposal it seems the company wants to charge the district for this period. Eli explained the company recently had to eliminate the free trial period because its equipment was being abused during the free trials as there were no financial consequences for doing so. Staff inquired about the \$2,500 security deposit mentioned in the proposal as that wasn’t discussed during the telephone conference with Moleaer; Eli agreed that was unexpected and should be questioned. However, he noted, the district is risking a maximum of about \$3,000 if it tries the unit for the three-month trial period and it doesn’t work out.

Director Comstock said he is more concerned about whether the technology will work; he asked Eli how convinced he is that this unit is worth the district’s time to try? Eli said the company received an EPA registration number for its unit; to receive this, a company had to have third-party research proving that its technology works as intended, which is an intense and expensive process. When he first heard about the company, Eli said, he thought “nanobubbles” was just a marketing slogan; however, he spoke extensively with the company’s engineer at a recent conference, as well as with some of the leading specialists in lake aeration, and is persuaded that the technology is truly innovative. He noted that it is limited in its application – it won’t work in rivers, for example -- however, in small lakes it very well may be the right tool for the job. There is still some research to be done to understand *how* the nanobubbles are lysing algae, he cautioned, but they clearly do so. In response to questions from director Smith, Eli explained that the nanobubbles are so small that they essentially are imploding when released into small lakes – in that process, they are creating a low-dosage oxidizing effect that kill algae. Also, simply having higher oxygenation levels in the lake also kills the algae. Eli said he feels very confident the technology is worth trying.

Director Smith said it would be nice if the district could measure the output of the nanobubble machine and determine how much of the oxygen released remains in the lake. Director Comstock asked if the district has been offered any references from other districts who have tried the Moleaer device. Discussion ensued and Eli said he will try and find out whether there is a nearby district to talk or meet with. Turning back to monitoring, Eli said he believes Moleaer should be willing to help pay to install a monitoring system to verify that its technology actually works. For example, a buoy with a telemetry unit could be installed in the reservoir to log data every 15 minutes and the data could then be downloaded and reviewed by staff once a month. Alternatively, Aquasource Management is a local company that is developing a monitoring service and is about to beta-test its product; perhaps BCPUD could be included in the beta-test. Director Smith said the buoy approach is similar to what the district did to monitor irrigation well with an In-Situ transponder unit. Discussion ensued about potential monitoring approaches, whether by grab samples or otherwise, and then touched on methods to ensure the nanobubble generator device components don’t malfunction. Eli said the parts to be concerned about are the water pump/compressor and the air blower, which are easily accessible for monitoring; the nitrogen membrane also can be monitored and replaced as necessary. At this point, director Comstock interjected and requested that Eli put together a specific monitoring proposal for the district to consider, taking into account all concerns discussed, to ensure that the nanobubble unit works as advertised and that its component parts are all functioning properly. Eli agreed to do so – he said he will run it by the district before presenting it to Moleaer. Staff said that in addition to dissolved oxygen, the district also would like to monitor PH to ensure there isn’t an unexpected change in water quality in this regard as a result of the injection of the nanobubbles. After further discussion, it was agreed that when the monitoring proposal is ready, the district and/or Eli will present it to Moleaer along with the other counter-points on the nanobubble generator proposal.

4. Sewer System Treatment Capacity Study – *Scope of Study and Next Steps.*

Kathryn Gies with West Yost Consulting Engineers joined the meeting by telephone. Staff explained the district is interested in engaging the firm to conduct a sewer system capacity study because two property owners in Bolinas have been ordered by the County of Marin to connect to the district's sewer system and five additional neighboring properties on the same street have asked to connect, as well, if the other two are allowed to do so. Kathryn asked if the district's current moratorium on new sewer connections was state-imposed; staff said yes, this was a condition of grant funding for a project to slip-line the collection system due to excessive infiltration and inflow ("I&I"). Kathryn said there very likely is capacity in the collection and treatment system to take on 7 new customers as this would add very little additional flow into the system; staff agreed, particularly since the district can control the amount of the additional flow into the system by imposing a cap on water use at these properties as a condition of allowing them on the sewer system. However, staff said concerns remain about on-going I&I that the district experiences in the winter months; the I&I levels are greatly reduced as compared to historic levels, but there are still issues in the winter. The sources appear to be: (1) occasional broken laterals on Wharf Road over the Bolinas Lagoon; (2) groundwater I&I entering the system through cracked laterals; and (3) storm water entering via roof/gutter systems and/or sump pumps. This winter, for example, staff discovered and terminated several very significant storm water connections to the system.

Discussion ensued about the scope of a capacity study and the data (historic and current) needed to develop models for such a study. Kathryn said that if the scope of the study entails only whether the district can add 7 new connections, the district will not need to show much additional capacity to be able to justify those connections – and the district's efforts to reduce I&I need to continue regardless. However, if the district wants to know how many customers it can add overall to its system, she said, that is a much more complicated question. Discussion ensued about the extent and detail of data needed. Director Comstock said he is concerned about overall fairness as there may be other residents who would ask to connect to the system if they knew there might be an opportunity to do so. Bill Pierce suggested the study be done in two phases: first, analyze whether the properties on Canyon Road be added and second, analyze how many other connections the district could allow. Kathryn said this makes sense as the second phase likely will take a lot more time/data; she suggested the district include in the first phase a task to define what its potential expanded service area might look like. The district could then collect data and conduct outreach within the potential service area to assess the level of interest in connecting to the system, all of which would help inform the work needed in the second phase. Director Comstock noted that the district's waste discharge permit allows a maximum of 65,000 gallons per day of flow to the system. Kathryn said that adding a significant number more homes may require an amendment of that permit or trigger other state concerns; she said that she works regularly with sewer districts seeking to amend their permits with the Regional Water Quality Control Board ("Regional Board"). Also, the treatment capacity of the pond system would need to be modeled if the district wants to consider adding a large number of homes to the system and this also could get quite complex. A lengthy discussion ensued about peak vs. daily flows and various other technical considerations involved in seeking to amend the district's waste discharge permit.

Kathryn offered to submit an engineering proposal for the district's consideration that sets out the first phase of a capacity study, including an explanation of what will be needed for phase two. She said she doesn't believe she can adequately scope phase two at this time as there are too many unknowns; the first phase can and should be fast-tracked given the dire straits the customers on Canyon Road. She requested any information the district has about the background reasons for the sewer moratorium (as this will inform what the district will need to show the Regional Board to allow a modification of the moratorium to allow the 2 – 7 new connections), as well as copy of the district's current waste discharge permit.

Director Smith said he analyzed the impact of rainfall on the district's treatment ponds 2 and 3. He said if they start empty in any given year and the district receives 62 inches of rain, the rainfall would completely fill the ponds. Kathryn agreed that a water balance analysis will need to be done assuming high rainfall conditions – she noted that current criteria require the ability to show disposal capacity for a 100 year rain event which the district may or may not be able to do, however, adding 2 -7 homes won't have a big impact on the water balance analysis overall. Kathryn said that the capacity analysis will need to cover collection, treatment and disposal – in each case, she anticipates that adding 2 – 7 homes will be doable because of the de minimus impact this will have. In response to comments from director Smith, she said the district may learn from phase one that it does not make sense to invest in a phase 2 study because the upgrades needed to the treatment or disposal capacity of the system in order to accommodate more connections may not be technically or financially feasible.

A brief discussion ensued about the potential expanded service area for the district's sewer system, including (in addition to Canyon Road), Ocean Avenue and Gospel Flats, as well as who should bear the capacity study costs (only the property owners seeking to connect?). In the interest of time, further discussion was deferred to a subsequent meeting.

5. Sewer Lift Station Pumps – *Recommendation to Purchase Reserve Pump to Facilitate Repair and/or Maintenance Projects.*

Staff presented a memorandum recommending that the district purchase a replacement pump for the downtown lift station. One of the existing pumps has developed a mechanical seal failure that needs to be repaired and it should have a full diagnostic to ensure there are no other issues (for example, could this pump need rebalancing and/or could it be the cause of the vibration issue previously detected at the station?); as such, it needs to be pulled and sent to an authorized repair shop in Oregon. Staff would like to purchase a replacement pump to install in its place when the pump in need of repair is off-site. Director Smith asked if the Oregon

repair shop can send a field crew to repair the pump on-site instead; staff will inquire. Director Comstock said that if field repair cannot be scheduled, he favors purchasing the replacement pump so that the district has back-up whenever one of its pumps needs to be pulled for repair; director Smith concurred.

6. Update on Current Capital Improvement Projects.

a. East Tank Rehabilitation Project.

Staff reported that the coating of the tank is complete except for the exterior touch-up. A representative from the Wasser paint company determined that the contractor had brush-applied the paint during touch up rather than spray-applied, and this is the reason the paint discolored during touch-up. Staff has directed the painting contractor to re-do the touch-up painting. The interior of the tank has been washed down. The earthquake joint on the pipeline coming in to the tank from the treatment plant has been installed, but the earthquake joint on the outgoing pipeline to the distribution system has not yet been installed.

b. Irrigation Pump Station Replacement Project.

Staff is working on finalizing the bid schedule with the engineers and the pump station manufacturer.

7. Update on Fixed Asset Inventory/Inspection or Upgrade Projects.

Staff plans to complete the fixed asset inventory before the end of the year.

8. Schedule Next Meeting.

Staff will email proposed dates for the next Committee meeting.

9. Community Expression.

None.

10. Adjournment

1:40 p.m.