C/CAG

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Minutes of

Resource Management and Climate Protection Committee (RMCP)

Date: Wednesday, February 19, 2020
Time: 2:00 p.m. to 4:00 p.m.

In Attendance:
Doug Silverstein*
Maryann Moise Derwin*
Ortensia Lopez*
Janet Borgens*
Diane Papan*
Rick DeGolia*
Donna Colson*
Tom Francis*
Christine Zaugg*
Kim Springer
John Allan
Charles Ice
Dario Presezzi
Phil Scott – West Bay Sanitary
Hilary Ganz – Rethink Waste

Not in Attendance:
Don Horsley*
Drew Combs*
Ortensia Lopez*
Bill Chiang*
Kristin Jensen*

*Indicates Committee Member

1. Introductions

2. Public Comment
No public comment

3. Approval of Minutes from January 15, 2019 RMCP Committee meeting
   - Janet Borgens- Motion to approve
   - Diane Papan - Second

None opposed, minutes approved

4. Presentation by Bioforcetech on conversion of wastewater biosolids to energy and biochar

Valentino Villa provided an overview of Bioforcetech's business and their technology. In 2013 they developed their first U.S. pilot to turn sewage waste into usable resources such as energy and fertilizer through natural processes. SVCW partnered with them to pilot their technology. They built their first full scale system in 2014. Their technology is designed to be as energy efficient as possible and includes a Biodryer which uses heat from bacteria decomposition to remove water from the input sludge. Next, pyrolysis removes bio gas which is used for bioreactor and the remaining two thirds is used for heating water to run the rest of the system.

- Donna Colson: This system runs off natural gas so we wouldn't be able to run this machine if we pass reach codes.
    - Doug Silverstein: Can the system run off electricity?
    - Villa - Yes, but we'd have to redesign some parts

The pyrolysis produces biochar which can be used for a variety of purposes. This process removes pollutants such as PFAs and heavy metals like mercury. These pollutants are captured in activated charcoal and results in approx. 250 lbs. of waste per 5000 tons of sludge.

- Colson – How many people is that?
    - Villa - 100k ppl/yr.
- Tom Francis: Where does this fit in the WWTP process?
    - Villa - This replaces a digester
- Papan: How many machines are needed?
    - We'll be replacing 3 digesters at SVCW with 10 machines at a significantly reduced cost

The system functions on digested or undigested sludge but there is more energy in undigested. The biochar that Bioforcetech produces at SVCW is sold back to RWC which uses it in their parks as a soil amendment. The machines are designed to be low maintenance.

- Colson: Question about cost comparison for construction and operation
    - Villa: This method cuts the cost of construction in half, operations are even less.
- Christine Zaugg: How is quality of the biochar ensured?
    - Villa: Pyrolysis prevents the formation of tars.
- Francis: How is this regulated? BAAQMD regulates and CDFA has approved this to be sold
- Charles Ice: How do you deal with quality when you're adding different sources of waste?
    - Villa: We aren't doing this yet but we're thinking about it.

After approving the technology, Bioforcetech is now focusing on new types of uses including cement and plastic. By using this in place of black plastic, GHG emissions can be reduced by 5 tons per ton of biosolids. Packaging foams are another example of this where the biochar can offset use of plastics.

5. <u>Presentation by Fluence on application of MABR wastewater treatment technology</u>

Ronan Barkan was invited back after the January meeting and presented more details on the application of the Fluence system. This system reduces energy use by up to 90% and can be used in any WWT applications, not just municipal WWTPs, but also greenhouses, packaging centers and processing facilities. MABR also can help decentralize WWTPs which helps reduce energy used for transportation and pumping. The MABR component as well as improved telecommunications has driven the cost down enough to make decentralization cost-effective. The MABR is designed to be a modular plug and play system that reduces the cost of installing civil infrastructure and allows for faster commissioning.

In Oregon, an MABR has been installed at a RV resort to replace 7 septic systems which allowed for treatment that was low-cost, odorless, quiet and minimally impactful. Ronan also presented on a project in the US Virgin Islands which reduced energy consumption for wastewater treatment which is very important due to the high cost of energy. The effluent was also reused for crops which is important for an area with little fresh water

In Israel, Fluence has a project treating wastewater from a dairy farm and a municipal water authority. Again, this reduced energy consumption by 90% and improved the effluent quality overall by partially treating 25% of flow and blending with the remaining flow.

- Papan – How much space is needed for an MABR system?
    - Barkan – Footprint doesn't matter too much; the system can fit into a 40-foot and 20-foot container (8x8x60) to fit a system that can treat 35,000 gallons. If footprint isn't the constraint, the systems can be installed below ground level, and you can have systems that are more energy efficient or require less maintenance.
- Francis – Does the system need continuous flow, or can it be shut down?
    - Barkan – Constant flow is ideal but not for the reason you're thinking. A reduction in flow won't hurt the membrane but it will affect the food supply for the biological element. In order to keep plants at schools running, they recirculate wastewater during the summer since the bugs don't need too much to stay alive.

6. Presentation by West Bay Sanitary District on water recycling for Sharon Heights Golf Course

Phil Scott provided an update on the recycled water project at Sharon Heights. A partnership with the Sharon Heights Country Club. Phil gave an overview of the project, the treatment system and how they finance the project. Some funding was received from the State Revolving Fund. The system is sized to treat 0.5 MGD.

The project should be operational by 3/31/20. Caltrans required a benefit to the state in order to grant longitudinal variance for easement. This came in the form of a fill station that Caltrans can use to pick up water for road maintenance projects. The system itself was designed to be sensitive to nearby uses. Visibility, noise, and odor were minimized. Future expansions can provide recycled water to SLAC. This was a public-private partnership. The golf course is paying for all the capital costs ($22.5m) as well as ongoing O&M but they don't have to pay for water. Water comes from West Menlo, Portola Valley.

- Maryann Moise Derwin: What would happen if Portola Valley wanted to put in a decentralized treatment system?
    - Scott – That would require going to LAFCO and having West Bay Sanitary District broken up.
- Rick DeGolia – What happens with removed solids?
    - Scott – This goes back into sewer system and flows to redwood city
    - DeGolia – Will that create flow issues?
    - Scott – No, we have a large 30-inch pipe that should not have flow issues.

Scott showed a time-lapse of construction as well as drone footage of the facility. The project stayed within the contingency ($19.5M plus a $1M contingency).

7. Committee Member Updates
    - Tom Francis – Provided an update on drought conditions. The supply from Hetch Hetchy is still fine but we've been experiencing dry conditions. We likely won't see an official report showing extent of the drought condition until next season, but it's likely if it stays this dry.

- Christine Zaugg SSMC - Annual Awards Ceremony is happening on April 2nd

8. Next Scheduled Meeting Date: March 18, 2020