

TIMPANOGOS SPECIAL SERVICE DISTRICT
BIOSOLIDS MANAGEMENT WORKSHOP
BROWN AND CALDWELL

APPROVED

July 19, 2018 5:00 p.m. Conference Room

Board Members

Present: David Bunker Mack Straw Mark Christensen
 Brian Braithwaite Blaine Thomas Chris Condie
 Lynn Walker Craig White Jay Meacham
 Dale Ihrke Bill Lee Sullivan Love
 Chandler Goodwin

District Staff: David Barlow, District Engineer
 Alan Robinson, Maintenance Coordinator
 Danette Smith, Board Secretary
 Richard Mickelsen (5:40)

Others: Brandon Heidelberg, Brown & Caldwell
 Steve Wilson, Brown and Caldwell

Brandon Heidelberg said they appreciate the opportunity to meet with the board and go in more depth on some of the conclusions from the biosolids evaluation. They have been working with District staff to characterize the solids and gone to look at different landfills and alternatives for both short and long-term options. Short term is higher priority as part of the odor settlement agreement there is a 2020 deadline that TSSD will no longer be able to compost on site.

Steve Wilson, Brown and Caldwell, gave a presentation on the short term and long-term options. Steve said as part of the settlement agreement, up until December 2020 TSSD has to decrease production of compost, only turn the compost piles at night, and maintain a five parts green waste to one-part biosolids mix ratio. Steve said biosolids differ from sludge. Biosolids are treated to standards that are required for recycling by regulations that come from the Federal Government, which address contaminants and pathogen reduction in biosolids, and refer to Class A, Class B biosolids and VAR (vector attraction reduction). VAR is stabilization, and TSSD material failed to meet the regulation requirements, therefore without composting the District does not have biosolids it has unclassified sludge.

Class A biosolids meet the highest standard. They are pathogen free material that can be distributed to the public and can be used with very little restriction. Composting, thermal drying, and advanced digestion are the most common technologies to get class A biosolids. Class B is used with limitations; it is commonly used on agricultural land but is assumed there is no public access to that land. Unclassified sludge does not have the stabilization, the concern with those is there is a high degree of odor potential and attracts flies. With no stabilization there is no recycling, and the only option is to go to landfill disposal.

Land application is very common around the country. In the U.S. there is a lot of incineration, but incineration is being decommissioned because of increasingly stringent air quality rules. There is treatment that can be either class A thermal drying or class A digestion. Other beneficial uses would include composting and landfiling. Landfiling is common, but less and less so. In California, landfill disposal of biosolids is being banned to reduce greenhouse gas production. Anaerobic digesters are very common and a way to overcome the VAR issue. The material is held in a digester for up to 20 days or more. The benefits of anaerobic digestion: 1- produces renewable energy in the form of biogas which can be used as an alternate fuel source 2- reduces production of landfill gas, which releases methane into the atmosphere 3- reduces volume; easier and less expensive to dry and haul 4- relatively easy to operate and maintain 5- odors typically removed from the system.

Steve said the study objectives were to identify short term solutions (before December 2020), investigate alternative technologies and processes for long term biosolids management, identify additional long-term benefits,

1 and evaluate alternatives based on objective criteria to make recommended next steps. The short-term options are 1-
2 landfill disposal where the District hauls to landfill/transfer station 2- landfill disposal where a contractor hauls to the
3 landfill the transfer station (landfills generally operate Monday through Friday only) 3- composting at NUERA pad
4 (pad has limited capacity). There were two other options that were determined to be not viable at this time. Because
5 these solids are not stabilized, if you try to hold them on a pad they are going to get pretty rank unless there was a
6 way to dry them first. Steve is not sure DEQ would allow it. You can apply them to fallow ground at the
7 appropriate agronomic rate, and then plant the crop the next season. There has to be a crop involved, it has to be
8 beneficial use. The short-term estimated costs without the dewatering or polymer costs; haul to landfill (District
9 hauls) about \$757,000, contractor hauls to the landfill about \$657,000, and composting at the NEURA pad would be
10 about \$1,020,000 but would allow continued recycling and producing a biosolids product.

11 Dale Ihrke asked the cost for composting now. David Barlow said it is tracked through the whole solids handling
12 department, not just the composting operation. For 2017 that number was \$1.3 million. Mark Christensen asked the
13 revenue. David Barlow said it was \$201,000 for compost sales. Craig White said that expense would include
14 hauling costs so that could be pulled out. Mark Christensen said he would like to know if we are spending more to
15 compost then to just dispose of it. If it is helping to defray costs that is great, but have we done the analysis to make
16 sure this is a good investment? David Bunker said this \$1.3 includes dewatering, polymer, it is the whole biosolids
17 handling department. If we haul we still have to do those things too, we do not have that number, but it would be
18 good to know.

19 Dale Ihrke said composting is doing what is best. We are providing a public benefit and a sustainable product.
20 Going to the landfill is throwing that away. It is a decision the board will have to make. Mark Christensen said it
21 seems to him that if we are having to haul it, store it and process it far away from here, trucking and other costs start
22 to drive in to that question about how much are willing to pay to create a product that is marketable. Brian said from
23 a financial position, he believes the only cost we are engaging was the tipping fees and hauling which would be offset
24 by the cost of composting and equipment, and the sales. If we tip it at the landfill, unless we have a rock-solid
25 agreement, which we haven't had up to this point, they can shut us off anytime and we are in trouble. From most of
26 the initial studies, it didn't make a lot of sense to continue the composting. Brian said you cannot haul out
27 unclassified material and then bring compost back in the same truck without cleaning it. It starts to become
28 expensive and unmanageable to do unless we couldn't find a landfill willing to accept what we are doing on a long-
29 term basis and get it locked in.

30 Steve said he agrees that composting is going to be more expensive; it is a value decision. As far as hauling to
31 NUERA, the concept was the product would come back in trucks that were dedicated to hauling yard debris. If you
32 are looking for the cheapest approach in the short term, landfill disposal is the one recommended. Steve said you do
33 not control your destiny if you plan on landfill disposal in the long run. Steve said they looked at non-cost factors for
34 the short-term options. Landfill disposal was generally ranked higher. It really comes down to whether you want to
35 keep the composting program going and maintain some biosolids recycling in the future. Short term conclusions are
36 direct land application of Class B, non-VAR biosolids is not currently feasible. Composting solids at NUERA is
37 possible but capacity is limited. A combination of landfilling, composting, and distribution of composted biosolids
38 would preserve a beneficial use component to the District's biosolids management but has logistical challenges.
39 Landfilling 100% of biosolids is feasible but a 5-day schedule may affect WWTP operations, hauling contracts/cost
40 need to be evaluated and additional landfills need to be identified.

41 Steve said they identified two pathways to implementing a long-term solution, either retain your existing
42 treatment train or to install primary clarifiers. If you want to go with anaerobic digestion, you need to go to with
43 installing primary clarifiers. As the solids are right now, they do not have carbon in them to be good feed stock for a
44 digester. If you install primary clarifiers, an advantage to doing that is it reduces your aeration requirements and
45 might extend your existing aeration capacity well off into the future. The secondary and primary solids are blended
46 and go into a digester or similar process before they go to dewatering and some type of beneficial use. An important
47 consideration, future expansion is inevitable and flows, loads and liquid treatment technology will impact the type of
48 solids treatment you choose. That goes back to whether you add the primary clarifiers or not. Primary clarifiers have
49 to be added if you want to do anaerobic digestion. Steve said adding primary clarifiers can reduce the cost of
50 aeration and you use a lot of power in those oxidation ditches; those savings can offset some of the operation costs

1 for solids processing. If you want class A, thermal drying is an option and offsite composting; a site would need to
2 be identified to compost offsite full scale.

3 Steve said they evaluated the long-term options of non-cost criteria versus relative costs on a weighted scale, with
4 cost being weighted at 50%. The findings of the evaluation are with the existing treatment the highest score is off-
5 site composting, and landfilling have the highest score. With adding primary clarifiers, MAD (Mesophilic Anaerobic
6 Digestion) has the highest score. Also, comprehensive, facility-wide needs must be considered to provide an
7 accurate assessment of costs. Landfill disposal is the cheapest option but includes risks and uncertainties. For any of
8 the alternatives, annual costs will at least double as a result of the settlement. MAD provides a flexible solids
9 processing alternative, it is the most common technology at similarly sized WWTPs. The next steps are plan on
10 landfill disposal meeting the short terms needs, evaluate operational impacts, particularly dewatering, at WWTP, and
11 develop an implementation plan including hauling and landfill options. Also, if desired consider demonstration scale
12 composting at NEURA to keep biosolids options open. Implement a strategic Facility Plan to consider long-range
13 WWTP needs and allow comprehensive evaluation of upgrades, including primary clarifiers and digestion.

14 Craig White asked if digestion introduces a risk factor of odor. Steve said no, digestion is all contained, Craig
15 said there is smell up at Central Valley at certain times. Steve said that is probably not the digesters, it could be
16 something else. Brandon Heidelberger said Central Valley does compost on site and that is potentially the cause of
17 the odor. Craig White said when they looked at digestion for their plant, that was the number one issue for residents,
18 was digestion and the risk of odors, so it is the perception.

19 David Bunker said this has been a lot of information and we probably need to discuss it a lot more. His thoughts
20 are short-term, landfill is probably the path we are headed down and it will take some time to figure out that long
21 term solution. Brian said when we expanded this plant we expanded it with the concept of continuing our current
22 process and did not anticipate having to change that. Had we gone through this beforehand we may have changed
23 our process, but he would find it hard to put a lot of money in to this plant right now. For Brian, the time would be
24 when we do our next upgrade. From a cost standpoint, hauling is about the only option because of the type of facility
25 we are until we do the next expansion project, so we are ten years away. Steve said he would agree but would
26 encourage the Board to take a really long look at this, because he is hearing is the projected growth in this area is
27 pretty significant.

28 Dale said it is only two and a half years before we have to go to a short-term option, and about seven and half
29 years before we need to do something more long term. That is really not that long. We need to start looking at
30 whether we want to stay with the process we have. If we do there would still be some capital because we do not meet
31 VAR requirements currently; we would need to make some improvements in order to meet that. The other
32 alternative is to change the treatment train and put in primary clarifiers. There is the potential when you have
33 primary clarifiers that you may not have to significantly expand the secondary portion of the plant because it takes a
34 load off the secondary. Also, anaerobic digestion reduces solids more than aerobic digesters, so you have less solids
35 that you have to deal with. We need to take a hard look at the future, 30 years out, like a master plan. Brian said if
36 you look at the list of what the different districts are doing now there are three districts that are not doing the same as
37 everybody else (anaerobic digesters), and we are one of them. Brian said he would assume it is a cost-effective
38 treatment process or others would not be going to it.

39 David Bunker said he would love to get more information on our composting costs. David Barlow said he would
40 get with Joe Martin and see if they can split out those costs.

41 Meeting adjourned. 6:00 p.m.