TIMPANOGOS SPECIAL SERVICE DISTRICT
ADMINISTRATIVE BOARD MEETING MINUTES

APPROVED

February 15, 2018 6:00 p.m. Conference Room

Board Members Present:

Mark Johnson	David Bunker	Brian Braithwaite
Lynn Walker	Dale Ihrke	Craig White
Chris Condie	Mark Christensen	Chandler Goodwin
Sullivan Love	Commissioner Bill Lee	

Excused: Mack Straw

District Staff:

Jon Adams, District Manager,	David Barlow, District Engineer
Shannon Hansen, Human Resource	Alan Robinson, Maintenance Coordinator
Danette Smith, Board Secretary	Joe Martin, CPA
Brad Christensen, Electrical Foreman	Flinn Hutchinson, Electrician
Michael Scheetz, Laboratory Director	

Others:
Craig Carlile, Ray Quinney and Nebeker
Brandon Heidelberger, Brown & Caldwell
Brandon Wyatt, Bowen Collins & Associates
Eric Ellis, Utah Lake Commission
Juan Garrido, Springville City
Randall Lutz, Renewable Energy Innovations

Call to Order

Mark Johnson, Board Chair, called the meeting to order. 6:05 p.m.

Public Comment

There was no public comment.

Consent Calendar

There were no items on the consent calendar.

Approval of Minutes

Commissioner Bill Lee made a motion to approve the minutes from the December 14, 2017 Administrative Board Meeting. Dale Ihrke seconded the motion. Those voting "Aye" – Mark Johnson, David Bunker, Mark Christensen, Brian Braithwaite, Chris Condie, Lynn Walker, Craig White, Dale Ihrke, Commissioner Lee, Sullivan Love, and Chandler Goodwin. The motion passed unanimously.

Finance

Joe Martin presented the financials. Joe said the impact fee report for the 2017 year was in dropbox. This is the first time in a long time that we have all the impact fees for the whole year by the end of January. The cities will go back and reconcile every month to see the impact fees collected and what was remitted to the district. There may be some that come in based on the cities reconciliation. Those are booked as a receivable and are revenue for 2017. David Bunker asked how the total impact fees collected ended up in relation to the budget. Joe said he could look into that; it seems like we budgeted right around $10 million. Joe said the auditors are scheduled to come the first part of March, so we are aiming for the April board meeting to have the audit presentation.

Action Item

There were no action items.

Communication

1. Presentation by Renewable Energy Innovations LTD – Randall Lutz

Randall Lutz, CEO of Renewable Energy Innovations LTD - Mr. Lutz said REI are a renewable energy developer who are bringing sustainable solutions to the Utah Lake initiative. Mr. Lutz said they created this almost a year ago, in connection with Utah Lake Commission. They formed an MoU (Memorandum of Understanding) with the Utah Lake Commission to provide a number of comprehensive regional solutions to restore the lake, to improve water quality and enhance its recreational activities. Also included in this MoU is to provide regional solutions to include the POTWs, dairy, agricultural, and food wastes. All of the solutions they are proposing would be financially sustainable through the bi-products and the technology they would deploy. Mr. Lutz said since they have begun they have received a lot of support from both local as well as national engineering companies and technologies to help accomplish their initiatives and goals. Mr. Lutz said their first project would be located right next to TSSD's wastewater treatment plant; they are in escrow right now on 100 acres just to the west of TSSD's facility. They will be processing 30 mgd of Utah Lake water and cleaning it. In that process they will also be producing a number of commodities. The technology they will be using will be taking water out of the lake, via permit from DWQ, run it through their solutions to clean it. The effluent from their facility is distilled water; it is 99.998% purity, which allows them to go directly to hydrogen and produce green power as well as return that water to Utah Lake. The process and part of the technology that cleans the water comes out of the oil and gas industry and has been used for a number of years.

Everything in the plan has a resident frequency and the frequency for pure water has been identified; they tune the water to that frequency and all the particulates in that water settle to the bottom. That process happens relatively quickly, and this technology is EPA certified. The hydrogen is then decomposed and separated; that helps to produce the hydrogen necessary to use fuel cell technology, which generates green power. The technology will be engineered and installed by AECOM. They will design, consult and construct this facility. AECOM has 85,500 employees worldwide and are ranked #1 in the engineering news top five hundred design firms for the 8th consecutive year. They will provide the knowledge, expertise and proven track record along with the bonding for the entire project from beginning to end. The project will be financed through a $450 million environmental green fund managed by Morgan Stanley and has already been qualified and approved. The Utah Lake initiative sets a new standard on how technology can be used in such a way to meet the environmental challenges without raising taxes or utility rates.

This property in its close proximity to the District allows for discussion of other things they may be able to help the district with. There are some specific technologies that could be added to the project that may assist the district with the green waste. Renewable Energy Innovations proposes an advanced wastewater/green waste removal process for TSSD to clean wastewater beyond the 2020 regulatory standard and to convert all of the sludge as well as the green waste to biogas in less than 5 days. These technologies are part of the Utah Lake initiative. Mr. Lutz said they would be deploying the same type of technology and process flow that is in wastewater treatment. They would suggest connecting right to the end of pipe, rather than discharge into the lake for REI to take back out again to clean. Mr. Lutz said they would also be removing the priority pollutants such as, pharmaceuticals, pesticides, industrial chemicals, and neurotoxins at the time they process the water. That is also true on the sludge; they are removing the priority pollutants. This technology is designed to replace the conventional compost operations with advanced systems converting 95%-98% of waste in days not months and will significantly reduce odors. The solutions are based on proprietary processes. Before this technology, is a pretreatment process that was actually developed by BYU, and they patented it about a month ago. Mr. Lutz said it allows us to break down green waste in about 48 hours. It turns into a tea like solution that needs to be digested in conventional digesters. The heart of that technology is an induced bed reactor designed at Utah State University. This is a high rate digester which is four to five times faster than other conventional digesters, also a much higher quality and quantity of bio-gas. In this process, you take the green waste, food waste and sludge, mixed in a certain recipe, heat it, put into a treatment

process for 48 hours it then flows into the induced bed reactor which produces the bio-gas. About 64% of that is methane; the balance goes to CO_2, which produces carbon by-products and then its by-product is distilled water.

Mr. Lutz said the benefits to TSSD would be 95%-98% conversion of all the green waste to bio-gas in less than 48 hrs. The technology would significantly reduce odors and eliminate 2-3 months of compost windrows and the management associated with their maintenance and also reduce power consumption and load to the plant. The facility will exceed all known nutrient requirements in 2020, as it would be brought to distilled pure water levels. The facility can be operational in 18 months. There will be no sludge disposal or landfill costs. Optional power can also be provided to the wastewater treatment plant. There will be no bonds, loan or debt service as added liability for the district. Renewable Energy Innovations will finance, build, own and operate these facilities at no cost to TSSD.

Mr. Lutz said for REI to finance such a project would require a 20-year feedstock agreement for all of the waste water, green waste, food waste and biosolids to satisfy the requirements for the investment group. They would also need a power purchase agreement of some amount, to offer this green power. There are also private contracts for this power to be used in other ways if the District cannot use a 100 mw of power. Mr. Lutz said they will guarantee that power will be 20% less than the current utility rate. REI would require 10-12 acres of land that is on the west side of TSSD. That property is currently not being used, they would need that land to be able to process the green waste and sludge. Mr. Lutz said they would like to invite members of the board to see this process in person at the BYU campus, sometime next week or the following.

Chris Condie asked what they do with the end product, the distilled water and carbon. Mr. Lutz said the distilled water goes right back into the lake; the commitment to the Utah Lake initiative is that every drop of water that is processed will go back into the lake. We would actually be adding more water back in if we process the green waste and sludge. Chris asked if it would be possible to get a copy of the presentation. Mr. Lutz said yes, he would email it to Jon. Brian Braithwaite said his belief is that TSSD' s effluent is cleaner than lake water. If that is the case, you would be cleaning clean water; it would be better to pull it out of the lake directly than to pull it out of the district's discharge. Mr. Lutz said that request was given to them by DWQ; because they would be bringing the water to distilled water level, which meets all the nutrient requirements for a long time. The district would probably only need to spend $600,000 a year to chemically treat to get where you need to be for 2020, but what happens in 2022, 2025, and 2030. Mr. Lutz said DWQ mentioned that if REI gets to the end of the pipe it would be better, but whether they do or not they are still going to process lake water. If this was of interest to TSSD, REI would increase their capacity, so in addition to 30 mgd that they would process of Utah Lake water, they would process TSSD's 18 mgd and increase their ability to assist the lake.

Brian asked if the benefit for us is that future upgrades to meet requirements would be handled through REI's process, and the District would not need to upgrade our equipment to meet those requirements. Mr. Lutz said yes, and REI would have that discharge permit, the district would not have it. Brian said the district would have that permit because REI would be part of our system, and REI would have to be a qualified piece; if REI no longer functioned, the district would have to find another process to do that. Brian said we treat green waste here because it is part of our composting process, we do not have an obligation to treat it. Once we shut down receiving green waste, we only will need to deal with the sludge unless we can find a way to mix the two somewhere else. Mr. Lutz said they can take the green waste through the district or take it in themselves. Mr. Lutz said there is no mixing, it comes in, it is ground and put in the system and then is gone in 48 hours. Mr. Lutz said they would like the sludge because that produces more biogas, but it is not required. Mr. Lutz said if the district's decision was to not take green waste after a certain period of time, REI would gather it from the community in other ways because they need the green waste to produce the biogas.

Chris clarified that in 2020 we have to stop composting, but with this the green waste could be delivered to REI next door. Mr. Lutz said, and the sludge could be piped in. Chris asked if there would there be a visual difference in the lake over the next 10-15 years? Mr. Lutz said there are a number of activities happening with the lake to help clean it up. About 50 mgd, treatment to the lake, that has 380 billion gallons in it, is going to be fairly insignificant. If this is successful we can add more treatment plants around the lake, we look to do much more.

Mark Christensen asked what the ratio of energy expended to ratio of energy output. Mr. Lutz said he wouldn't know that, he is not an engineer, but he could get that information. Mark C. asked what happens to the pollutants that are taken out of the wastewater? Mr. Lutz said when they do the process, that material all falls to the bottom;

that material is then taken to another site where it is mined. Normally, we wouldn't see this because it is so minute, but doing 30 mgd plus the 18 mgd from the district, that over the course of a week there is enough there that they can actually pull copper and by-products. The way we pay for this technology is through this effort where we can resale some of those products. The copper will go to Kennecott, as well as the power that is generated and the carbon products that are manufactured.

David Bunker said this is a proprietary process, which is protected and patented, he thinks it would be remiss of the board not to dive into the details. There is a lot of work that would have to go in before this board could ever make a commitment to something like that. Going over to BYU and taking a look at the process is interesting although it may not give us all the answers we need. Mr. Lutz said on March 8th, they will have their engineering team here to meet with Provo and a few other cities. Mr. Lutz said they could provide time with the District's engineers to give more details. Sullivan Love said he has always been taught that if it sounds to good to be true it probably is. Based on what Mr. Lutz is saying, we could do away with any improvements we have planned to come in to compliance. Sullivan asked what guarantee we would have if we connect to your system, if your system goes down, what happens with our discharge. Mr. Lutz said initially the worst-case scenario would be that you would have to add chemical treatment to meet the regulatory issues, it could be written into the bond that we would pay for them. Mr. Lutz said we certainly want to make sure we stay compliant.

Mark Johnson asked about the financing. Mr. Lutz said the agency will bond and guarantee its performance and its compliance. The financing will come through Morgan Stanley, that is going to pay for the technology and engineering. Mark Johnson asked how the odors would be contained. Mr. Lutz said the green waste is ground same day, then it is put into the system where it will be closed system for 5 days, the sludge will come in through a pipe system and be entirely closed, with no risk of odor. Mr. Lutz said the way he understood it most of the odors come from green waste. Mark Johnson said it comes from the composting process.

Mark Christensen said what is being proposed is very interesting and is a new and exciting concept. He is a bit skeptical of how all of these things are going to work. Mark shares the concerns that some of the board members have raised, what happens if your operation does not end up being viable, what exposure do we have? There are a whole lot of engineering questions, and Mark is interested to see how it plays out. It sounds too good to be true. Mr. Lutz said all the technologies you have seen tonight operate somewhere; this is the first time they have been brought together in this kind of a solution. The only part of the technology that is not worked at a commercial level, is the green waste operation, which is not significant. Mr. Lutz said whether TSSD does this or not REI is still doing what they planned to do and purchased land to clean up the lake water. Even if you say no, we are still going to be dropping that pipe into the lake and still be processing very closely to the end of your pipe. We feel like there is a sufficient reason to have a discussion with the district to see if there are additional ways we can assist you; certainly in the commodities we are producing, particularly in the power. Brian said if you could do half of what you claim you can do, we could create a facility that would significantly benefit from it. If we didn't have to build our facility or grow it to the next level, you could grow yours and we could do less, then it becomes the win, win. But, we are not going to back down from anything we are doing today until this is a proven commodity and we can trust it, because the influent continues to come here 24 hours a day 365 days a year. Brian said given enough time and working relationship, as long as there is no liability to us, then he is absolutely for looking into it. Mr. Lutz said obviously DWQ is not going to give them a permit to operate or a discharge permit unless they meet the criteria. We will have to work to get the cities involved, and it would be a phased approach.

Brian said he sees our actual cost would be the agreement for the land. If this doesn't work out, how do we get that land back, if it does work, it is a pretty minimal risk for us to have land that we do not use be tied up for a while. Mr. Lutz said you can keep the land and just lease it. Mark Christensen said if we are disposing of property we would have to go out for a public process and give others that may be interested a fair shake. There are some attorney questions that would need to be worked out; we just cannot enter into a contract without making sure we have checked those boxes. Mr. Lutz said there will be a mobile unit to demonstrate the technology in about a month, and they will invite all the wastewater treatment plant representatives to see that technology work. Chris said what is the timeline once they secure the land. Mr. Lutz said 18 months or sooner; permitting is the issue. They are in that permitting process now. Mark Christensen asked if there is an ownership issue for water rights that come out of the plant. Are we sacrificing our water rights if we pump it straight to this organization? Craig Carlile said we have

downstream water rights that came up years ago when we were talking about reuse and the Jordan River; if it is proposed correctly the number of gallons here going into the lake, we not going to have a problem. We are not doing reuse now, some communities, at some point, may want to have a right to reuse. Mark Christensen said he would task Craig, as this proceeds forward, to make sure we are not giving up any rights to that water.

2. Engineering Update – Brown and Caldwell

Brandon Heidelberger, Brown and Caldwell, said there was a kickoff meeting last month on the Biosolids Management Evaluation. They have reached out to some of the short-term options we are looking at; talking to North Pointe Solid Waste about their current capacity and future plans and how the District may fit into those. We are also reaching out to other entities for other possible solutions to solids disposal and management. This is about an 8-month project. The schedule is geared to whether there are changes here at the plant or an offsite facility that we have recommendations and the costs for your 2019 fiscal planning. There are several workshops scheduled throughout the year.

There was a kickoff meeting yesterday for the Phosphorus Removal Reliability Improvements Project. As part of this project, Brown and Caldwell helped the District prepare a request to DWQ for a variance on the schedule for the phosphorus limit. There was a resolution passed by the board in December that was packaged with the request letter. Brandon said they have been following up with DWQ, and it sounds as if they received proposals from every entity in the state, so it is going to take some time for them to review. We are not expecting a response back until about mid-year. Brandon said they will continue to follow up and present any updates as they are received. Something you may see in that response is an interim-limit in 2020; that will be based on your historical performance of the plant. You are likely to see in that response is a request for progress to continue to be made in meeting that standard, asking for changes and modifications you may be making in the plant to reliably meet phosphorus in the future.

Another part of this project is to evaluate the plant for phosphorus removal. One of the first steps we will be taking is detailed sampling and process evaluation of the plant. We are relying on the onsite laboratory to do a lot of that testing. Then to take the planning model and utilize that to develop some of the design and improvements we will be making here, starting with aeration design. Out of that design criteria are new blowers. Part of this project is to go through a blower procurement evaluation. Brandon said they will be working with staff to develop criteria to evaluate and look into different blower technology. This is about a twelve-month schedule starting with the sampling, modeling, blower procurement, design, and then construction next year.

Jon said he thought the state will also require the facility to put in chemical removal as part of their conditions. We asked for five years and are hoping to get a year or two. Jon said he is happy with the kickoff meeting and happy with the people that are involved. Michael Scheetz, TSSD Laboratory Director was present and Jon introduced him to the Board.

Mark Johnson said the Board was informed that Jon Adams will be leaving the end of February. Mark said we are going to be very hard pressed to find somebody as equally qualified and knowledgeable as Jon. Mark said Jon has done an excellent job for the District and we have been very fortunate to have him here. Mark thanked Jon and presented him with a parting gift from the board.

3. Manager's Report

Jon said there is a lot going on with the Utah Lake Steering Committee, and Eric Ellis is here from the Utah Lake Commission. Jon said they have met as a steering committee a few times since the first of the year and there is a meeting scheduled the 27th of this month which he will attend. They are trying to set the science panel, and we have made a nomination for that. Jon said since he is leaving, David Barlow will take his seat on the panel. Jon said anybody that is interested in being an alternate, let him know, we feel like it should be someone from the District.

The plant was in full compliance for the month of January. Jon said pay extra attention to the effluent phosphorus 0.33 mg/L. Our year-end total for last year was about 20.09 mg/L. That was with three excursions; if we lose the aeration, it really shoots up the 1 mg/L average. We had three of those excursions due to mechanical issues and that is really what the blowers are about; to get that reliability and redundancy. When we are up and running we are in good shape, and the numbers look good. Jon said we keep going on the steering committee, and the research and

what it yields. He believes we are doing the right thing and does not think any of us will argue with results, if it tells us to do a certain thing, we want to be able to justify it to the rate payers.

Jon commented on the REI presentation. Jon said he wanted the board to see the proposals that are out there. There will be all kinds of issues to work out, most of it will be with permitting, liability and water rights. For the ten to twelve acres, there will be wetland mitigation. There is a good chance DWQ would ask us to meet limits before it was released to REI, so if they went down our effluent would be meeting limits. We always have liability for that effluent going out. The green waste stream could be easily solved, there could be road put into there. It would be a big concern off the shoulders of the city, if there was a place to take your green waste. Brian Braithwaite said if nothing else happened other then we just didn't have to truck our waste and pay that, it would be a win, if we could get rid of the polymer, it would be even a bigger win. Jon said because of the nature of the plant, there are places to take that out, and realistically you are going to go through the bioreactors before you would divert that. The water rights are going to be an issue no matter what. You have municipal water rights in the city and if you clean it to that degree some are going to want it back, which will reduce the amount going into Utah Lake.

Mark Johnson said he has been busy the last month, so David Bunker has been helping with the requirements, description and selection process for the manager position. Craig White will also be helping with the selection. Mark said they have put together the requirements and they will be going out for advertisement. Jon said they have updated the position description with some changes and those changes have been forwarded to Shannon. Mark said they have a lot of confidence that Shannon will be able to keep things running well here at the District. Mark Christensen asked if it is possible to see the recruitment before it goes out. Mark Johnson said yes, he couldn't see a reason why they couldn't send it out to the board.

Brian Braithwaite said because this has to do with personnel, could the board have a discussion in closed session, on some of the expectations of Jon's continued ability here? Mark said he would entertain a motion to go into closed session.

Brian Braithwaite made a motion to go into closed session for the purpose of discussing personnel matters. Sullivan Love seconded the motion. There was a roll call vote. Those voting "Aye" – Mark Johnson, David Bunker, Mark Christensen, Brian Braithwaite, Chris Condie, Lynn Walker, Craig White, Dale Ihrke, Commissioner Lee, Sullivan Love, and Chandler Goodwin. The motion passed unanimously. 7:18 p.m.

Closed Meeting

Chris Condie made a motion to go out of closed session. Mark Christensen seconded the motion. Those voting "Aye" - Mark Johnson, David Bunker, Mark Christensen, Brian Braithwaite, Chris Condie, Lynn Walker, Craig White, Dale Ihrke, Commissioner Lee, Sullivan Love, and Chandler Goodwin. The motion passed unanimously.

Adjourn: David Bunker made a motion to adjourn. Chandler Goodwin seconded the motion. All present "Aye". Meeting adjourned. 7:45 p.m.