BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT

375 – 11th Street, Oakland, CA 94607 Office of the Secretary: (510) 287-0440

AGENDA
Sustainability/Energy Committee
Tuesday, July 26, 2016
8:30 a.m.
Training Resource Center

(Committee Members: Directors Young {Chair}, Linney, and Katz)

ROLL CALL:

PUBLIC COMMENT: The Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

DETERMINATION AND DISCUSSION:

1.	2015 Greenhouse Gas Inventory and Mitigation Efforts	(Wallis)
2.	Energy Strategy Update	(Wallis)
3.	Administration Building Efficiency Improvements Project	(Wallis)
4.	Trench Spoils Program Update	(X. Irias)
5.	Microplastics Update	(Horenstein)
6.	Food Waste Program Update	(Horenstein)

ADJOURNMENT:

Disability Notice

If you require a disability-related modification or accommodation to participate in an EBMUD public meeting please call the Office of the Secretary (510) 287-0404. We will make reasonable arrangements to ensure accessibility. Some special equipment arrangements may require 48 hours advance notice.

Document Availability

Materials related to an item on this Agenda that have been submitted to the EBMUD Board of Directors within 72 hours prior to this meeting are available for public inspection in EBMUD's Office of the Secretary at 375 11th Street, Oakland, California, during normal business hours, and can be viewed on our website at www.ebmud.com.

W:\Agendas\Agendas 2016\2016_Ctte Agendas\072616_sustainability_agenda.docx

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager

FROM: Michael J. Wallis, Director of Operations and Maintenance

SUBJECT: 2015 Greenhouse Gas Inventory and Mitigation Efforts

INTRODUCTION

District Policy 7.07 – Energy includes goals to be carbon-free for indirect emissions and to achieve a 50 percent reduction in direct emissions (compared to 2000 levels) by 2040. This memo provides a summary of the District's 2015 greenhouse gas (GHG) emissions inventory and progress towards the District's GHG emission goals. These items will be discussed at the July 26, 2016 Sustainability/Energy Committee meeting.

SUMMARY

The District has been tracking and reporting its GHG emissions since 2005. GHG emissions are calculated using specific protocols to ensure consistency from year to year. In 2015, the District's GHG emissions totaled 37,289 Metric Tons of Carbon Dioxide equivalent (MT) which represents a 23 percent reduction from year 2000 levels, and a 24 percent increase from the 2014 emissions inventory (31,793 MT). Staff continues to investigate and implement measures to reduce GHG emissions.

DISCUSSION

There are many factors that affect the District's GHG emissions and some of those factors are outside the District's control. GHG emissions are comprised of indirect and direct emissions. The District's indirect emissions result from the use of electricity, and direct emissions result from the combustion of fuel in stationary and mobile equipment. Indirect emissions are calculated using the District's annual electrical use multiplied by an emissions factor (pounds of CO_2/kWh) for the power source. The emissions factor varies from year to year, as it depends on the fuel used by the electrical utility for power generation. Direct emissions are calculated using the District's total annual fuel consumption multiplied by an emissions factor (pounds of CO_2/gallon of fuels used) for the specific fuel used (i.e., propane, natural gas, gasoline, or diesel).

GHG Emissions on a Sector-Specific Basis

The District's GHG emissions inventory can be categorized into five sectors representing major areas of operations: Buildings, Fleet, Raw Water, Treatment and Distribution, and Wastewater. The table below summarizes the 2015 GHG emissions for each of these sectors. In 2015, the Raw Water sector was the most significant source of GHG emissions. The Raw Water sector emissions vary significantly from year to year based on operation of raw water pumps and the Folsom South Canal Connection (FSCC). In 2015, FSCC operations accounted for 70 percent of the GHG emissions from the Raw Water Sector.

Sector	Direct GHG Emissions (MT)	Indirect GHG Emissions (MT)	Percent of Total
Buildings	2,856	1,431	11%
Fleet	6,918	0	19%
Raw Water	0	11,588	31%
Treatment and Distribution	0	11,580	31%
Wastewater	571	2,345	8%
Total	**10,345**	**26,944**	**100%**

Indirect Emissions Goal

The District's 2015 indirect emissions were 26,944 MT, which is 2,464 MT below the District's 2015 goal of less than 29,408 MT, based on Policy 7.07. As a result of surpassing the indirect emissions goal, the District will not need to purchase tradable renewable energy credits (TRECS).

In 2015, the operation of the FSCC facilities resulted in 8,222 MT which is about 5,000 MT more than 2014. However, demand for treated water was low in 2015 resulting in less electricity consumption for the Treatment and Distribution sector.

Direct Emissions Goal

The District's 2015 direct emissions were 10,345 MT, which is 896 MT over the District's 2015 direct emissions goal of 9,449 MT. The District had 1,291 vehicles in its fleet at the end of 2015, 57 more than it had in 2014. Although the new vehicles are generally more efficient, there are more vehicles using fuel. Staff will purchase carbon offsets to mitigate the emissions exceeding the 2015 goal.

Staff continues to make efforts to reduce direct emissions, including a pilot project to use renewable diesel. Renewable diesel is created from fats or vegetable oils refined using the same processes as petroleum-based diesel, and has no adverse effect on diesel engines. Biodiesel is not renewable diesel. It is created from similar renewable feedstocks subjected to a chemical process that creates a product that is different from renewable diesel. Renewable diesel has the additional

advantages of reducing both particulate matter and oxides of nitrogen, and has a lower GHG emissions factor than regular diesel.

FISCAL IMPACT

The District met the target goal for indirect GHG emissions for 2015. As a result, TRECs do not need to be purchased. The District exceeded the direct emissions goal by 896 MT. Carbon offsets are currently selling for $12.70/MT, and it will cost approximately $11,026 to offset these emissions.

ARC:MJW:ss

I:\SEC\2016 Board Related Items\Committees\072616\Sustainability Ctte\OMD_2015_Greenhouse Gas Inventory.docx

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Michael J. Wallis, Director of Operations and Maintenance MJW

SUBJECT: Energy Strategy Update

INTRODUCTION

This memo provides an update on the District's renewable energy projects, the expansion of Marin Clean Energy (MCE) into Walnut Creek and Lafayette, and developments in renewable energy tariffs. This information will be discussed at the July 26, 2016 Sustainability/Energy Committee meeting.

DISCUSSION

Current Photovoltaic Projects

In October 2015, the District executed two Power Purchase Agreements (PPAs) with SunEdison for the purchase of photovoltaic (PV) generated electricity from a 340 kilowatt (kW) project at Camanche Dam and a 340 kW project at the North Richmond Water Reclamation Plant (WRP). Under the PPA, SunEdison was to construct the two projects on District property, and operate and maintain the projects for 15 years. On February 29, 2016, the District terminated the two PPAs with SunEdison following a request from SunEdison to increase the PPA pricing terms. SunEdison subsequently filed for bankruptcy.

Staff initiated negotiations with SolarCity, the PV vendor who had provided the second best pricing proposal, for a PV project at the two sites. On July 12, 2016, the District executed a PPA for a slightly smaller 325 kW PPA project at North Richmond WRP. Construction for this project will begin in the next five months. The PPA for the Camanche site is on hold pending compliance with requirements of the District's Federal Energy Regulatory Commission (FERC) license regarding use of FERC project lands for non-project purposes. This process should be completed in the next few months and upon final PPA negotiations with SolarCity, staff will seek Board approval for the Camanche PV project.

Marin Clean Energy

On March 15, 2016 and March 14, 2016, the cities of Walnut Creek and Lafayette, respectively, elected to join MCE Community Choice Aggregation. MCE offers electric customers greener energy alternatives to Pacific Gas and Electric (PG&E), a 50 percent renewable energy option (Light Green) and a 100 percent renewable energy option (Deep Green). The Light Green option has an emissions factor approximately 23 percent lower than PG&E's, while the Deep Green has zero emissions. All PG&E accounts in the two cities will automatically be switched to MCE in September 2016 unless the customer elects to opt out of the program. The District has a total of 40 electric accounts in Walnut Creek and Lafayette; half of them can be served by MCE under the Light Green option at a reduced cost and one account will realize reduced costs under the Deep Green option. The switch to MCE will save the District approximately $500 per year in energy purchases and about 2.4 Metric Tons (MT) of GHG emissions. The remaining 19 accounts do not offer any cost savings at this time and will be opted out of the program, and remain with PG&E. Staff will periodically review the cost of MCE service for eligible accounts, and if found to be less than or equal to PG&E's costs, action will be taken to switch to MCE service. All efforts to reduce the District's indirect emissions must adhere to Policy 7.07 – Energy, which requires that the cost of the GHG-reducing effort be evaluated against the cost of purchasing Renewable Energy Credits (RECs). With the current market price for tradable RECs at $1.00 per REC or approximately $0.001 per kWh, the cost to purchase power from a GHG-free source like MCE cannot exceed $0.001 per kWh above the cost to purchase PG&E power.

Renewable Energy Tariffs

Net Energy Metering (NEM)

The NEM tariffs are a special electric tariff that provides customers with onsite renewable generation, an offset to their on-site electric load, and a full retail credit for generation exported to the electric grid. The existing version of NEM (i.e. NEM 1.0) is set to expire on July 1, 2017, or once the utilities reach a specified cap. In the PG&E territory, the cap has been reached and the NEM 1.0 tariff is closed to new participants. In February 2016, the California Public Utilities Commission (CPUC) adopted rules for a replacement NEM (i.e. NEM 2.0) tariff for the utilities. NEM 2.0 is similar to NEM 1.0 with a few exceptions. All energy exported offsite is credited at the full retail credit less a departing load fee of about $0.02/kWh. This represents a reduction in benefit of 5 percent to 30 percent depending on the retail tariff. There will also be a one-time interconnection fee of $75 to $150 per project site and there is no cap on participation. The CPUC will reconsider NEM structure again in 2019.

Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT)

In 2011, the CPUC approved the RES-BCT tariff. The RES-BCT tariff allows local governments to generate electricity from a renewable energy source at one electric account, and transfer bill credits to up to 50 benefiting accounts of the same local government entity. The renewable

generating facility can be as large as 5 MW and the bill credits are valued at the generating component of the tariff, which is about 50 percent of the value of the full retail tariff or half the value of NEM credits. All credited accounts must be under bundled PG&E service; therefore, District's accounts served by MCE, the Western Area Power Administrator, or under NEM are not eligible for the bill credit. Until recently, the lower value of the RES-BCT credit made the feasibility of developing PV under the RES-BCT credit challenging. The continued decline of PV pricing, economy of scale, and availability of low interest financing from Clean Renewable Energy Bonds (CREBs) has made the RES-BCT tariff a more feasible alternative for developing PV projects.

RES-BCT Project Investigation

Staff is investigating a number of District sites suitable to accommodate a larger PV project under the RES-BCT tariff. The site must be located within the service area and the primary site under consideration is the Oakport Maintenance Center. Paring the District's largest 50 qualified electric accounts to the RES-BCT tariff equates to a 5 MW PV project with some margin to account for future changes in PG&E tariff design. The 5 MW PV project's estimated cost is between $13 million and $15 million, and would provide approximately 12,000 MWh of annual energy production. This is equivalent to about $1.2 million in annual RES-BCT credits. The credit would offset approximately 5,000 MT of GHG emissions from the 50 accounts, or the approximately 20 percent of the District's annual indirect emissions. The project will have a simple payback of approximately 12 years and a 30-year net present value of $17 million. The additional 5 MW of PV would increase the District's existing PV portfolio from 1.2 MW to 6.2 MW.

Developing large PV projects under the RES-BCT tariff requires considerably more resources and effort than developing small PV projects under the NEM tariff. A PG&E interconnection study is required to identify electrical grid improvements to accommodate any RES-BCT project. These studies can take approximately a year to complete and require an initial deposit of up to $50,000 or more, depending on the complexity of the anticipated improvements. Following the study, PG&E requires an additional year or more to complete the design and construction of any necessary grid improvements. The District will need to complete the California Environmental Quality Act (CEQA) requirements and address possible zoning issues. It is estimated that it will take two to three years to complete the feasibility analysis, interconnection studies, CEQA documentation, and design and construction of the 5 MW project.

FISCAL IMPACT

The North Richmond PV Project will provide an estimated net present value of $264,000 over the 15-year PPA term while the Camanche PV project's estimated net present value is $1.8 million. The estimated annual savings from switching 21 electric accounts in Lafayette and Walnut Creek to MCE service is $500. The capital cost for a 5 MW PV project under the

RES-BCT tariff is approximately $15 million and has an estimated net present value of $17 million over the 30-year project life.

NEXT STEPS

Staff will opt out of MCE electrical service in the cities of Walnut Creek and Lafayette for the accounts that will not realize a cost savings. The design and construction of the North Richmond WRP PV PPA project is proceeding, and the FERC notification process for the Camanche PV PPA project continues to move forward, followed by finalizing the PPA terms. The site investigation of a large PV project under the RES-BCT tariff continues, and the preliminary electrical design will be completed in preparation for the interconnection study application.

ARC:MJW:ss

I:\Sec\2015 Board Related Items\Committees 2016\072616_sustainability ctte\energy update.doc

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager

FROM: Clifford C. Chan, Manager of Maintenance and Construction

SUBJECT: Administration Building Efficiency Improvements Project

INTRODUCTION

The District's Administration Building (AB) uses a large amount of energy and generates enormous amounts of heat compared to modern buildings and systems. This memo summarizes the plan and schedule for completing energy-efficiency projects to reduce the AB's energy use. These upgrades will improve building systems efficiency and reliability, and reduce capital, operating, and maintenance costs. This item will be discussed at the July 26, 2016 Sustainability/Energy Committee meeting.

SUMMARY

The AB uses on average 2,989,021 kilowatt-hours (kWh) of electricity and 366,808 therms of natural gas each year, for an average annual cost of approximately $692,000. The AB Efficiency Improvements Project includes ten interrelated projects that will be completed in three phases over the next three years. The first two phases of the project will reduce heating and cooling loads and upgrade the lighting in the AB, which will reduce both energy consumption and water use by the existing heating, ventilation, and air conditioning (HVAC) system. The third phase will upgrade the HVAC system. When completed, the AB will be Energy Star rated. The Project is expected to be completed by the end of FY19 and will reduce energy costs by approximately $390,760 in the first year.

DISCUSSION

The AB was first occupied in September 1991 and comprises 263,000 square feet of office space and common areas. The building was designed during an era of mainframe computers, cathode ray tube computer screens, and less efficient lighting. These systems used a large amount of energy and generated enormous amounts of heat compared to today's virtual servers, and LED monitors and lights. The phased upgrades to the AB will address these issues and be completed in three years. Phase 1 focuses primarily on reducing the heat load and improving the efficiency of the Data Center. Phase 2 focuses on reducing the heat load and improving the efficiency of the AB's occupied spaces. Phase 3 will replace the existing HVAC equipment to match the reduced

heating and cooling requirements. The details of the work to be completed in each phase are summarized below.

- Phase 1: Improve the efficiency and reliability of the Data Center's uninterruptable power supply and cooling equipment.
- Phase 2: Upgrade lighting to LED fixtures, add window film to reduce the effects of thermal energy from sunlight, and replace the hydraulic air control system and thermostats to a digital control system. These improvements will improve reliability, reduce maintenance costs, and improve tenant comfort.
- Phase 3: Upgrade the central HVAC equipment (chillers, cooling towers, boilers, and auxiliary systems).

The AB Efficiency Improvements Project will improve the energy efficiency of the building and ensure reliable heating and cooling of the staff-occupied space and Data Center. This approach will also reduce operation and maintenance costs, reduce the size of the HVAC equipment, and will increase the AB's Energy Star rating score from 47 to 75, making the AB Energy Star rated. Energy Star is an Environmental Protection Agency program, and having the AB Energy Star certified means the building uses significantly less energy and generates fewer greenhouse gas emissions (GHG) than an average building. The Energy Star online tool was used to calculate energy saving and GHG emission reductions. The total GHG reduction is estimated to be 713 Metric Tons of Carbon Dioxide equivalent per year.

FISCAL IMPACT

The estimated cost of the AB Efficiency Improvements Project is $7,767,000. Funding for this project is included in the capital improvement budget. The majority of the projects will result in electricity savings; therefore, the cost savings only uses electricity costs. When completed, the upgrades will reduce energy costs approximately $390,760 per year (for the first year). PG&E electricity costs for the AB have increased an average of 5 percent each year. Factoring in the escalation in electricity costs, this project has a simple payback of 14 years.

NEXT STEPS

Staff will be preparing a Request for Proposals for the design consultant for the efficiency upgrades and are finalizing the project scope and schedule for the first phase of the project. Selection of the design consultant is expected to be completed this fall.

ARC:CCC:ss

I:\Sec\2016 Board Related Items\072616\Sustainability/Energy\OMD\admin_bldg_efficiency_impvmts.docx

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager

FROM: Xavier J. Irias, Director of Engineering and Construction

SUBJECT: Trench Spoils Program Update

INTRODUCTION

The District maintains a Trench Spoils Program to address excavated soil, rock and pavement material generated by construction and repair work. This update reviews the status of the Trench Spoils Program, including current efforts to address near-term capacity issues at the Miller Road trench spoils disposal site, and changes to the Trench Spoils Management Plan. This information will be discussed at the Sustainability/Energy Committee on July 26, 2016.

SUMMARY

Trench spoils are the excavated soil, rock, and pavement material generated by pipeline construction and repair work. The majority of trench spoils created by District forces are clean, inert soil. This material is hauled from work sites to one of the District's three active trench spoil disposal sites (Amador, Briones, and Miller Road sites; see attached location map) for temporary storage. The Trench Spoils Program covers the maintenance of the disposal sites in a cost-effective and environmentally acceptable manner, and avoids costly disposal of the trench spoils in a commercial landfill.

DISCUSSION

The District currently generates an average of 41,000 cubic yards (CY) of trench spoils per year. The District's disposal sites will be approaching the estimated maximum combined capacity of 739,000 CY in the next few years. Briones, Miller Road, and Amador have estimated maximum storage capacities of 518,000 CY, 156,000 CY, and 65,000 CY, respectively. Briones and Amador are at approximately 75% of maximum capacity. Miller Road is approaching maximum capacity and will require removal of some, if not all, stored trench spoils in FY17 to maintain adequate capacity for continued use. District staff will solicit a contractor for the off-haul through a Request for Proposal (RFP) process. Selection criteria will include considerations for cost as well as environmental impact and benefits.

The District maintains a Trench Spoils Management Plan (TSMP), which was last updated in 2007. The TSMP contained recommendations for reduction, reuse, and recycling initiatives and outlined an approach for managing the trench spoils generated every year. Additionally, it included assessments of site management needs, environmental issues, and the storage capacities of the disposal sites.

An update to the TSMP is planned that will build upon the previous TSMP with the objective of managing the long-term use of the disposal sites. The update will identify and recommend opportunities to manage the trench spoils currently stockpiled at the disposal sites in a cost effective and environmentally conscious manner, update production projections with consideration for Pipeline Rebuild efforts, and recommend strategies to further reduce and reuse trench spoils that will be generated in the future. Given the specialty expertise involved in addressing these issues in a holistic manner, staff anticipates consultant assistance to update the TSMP.

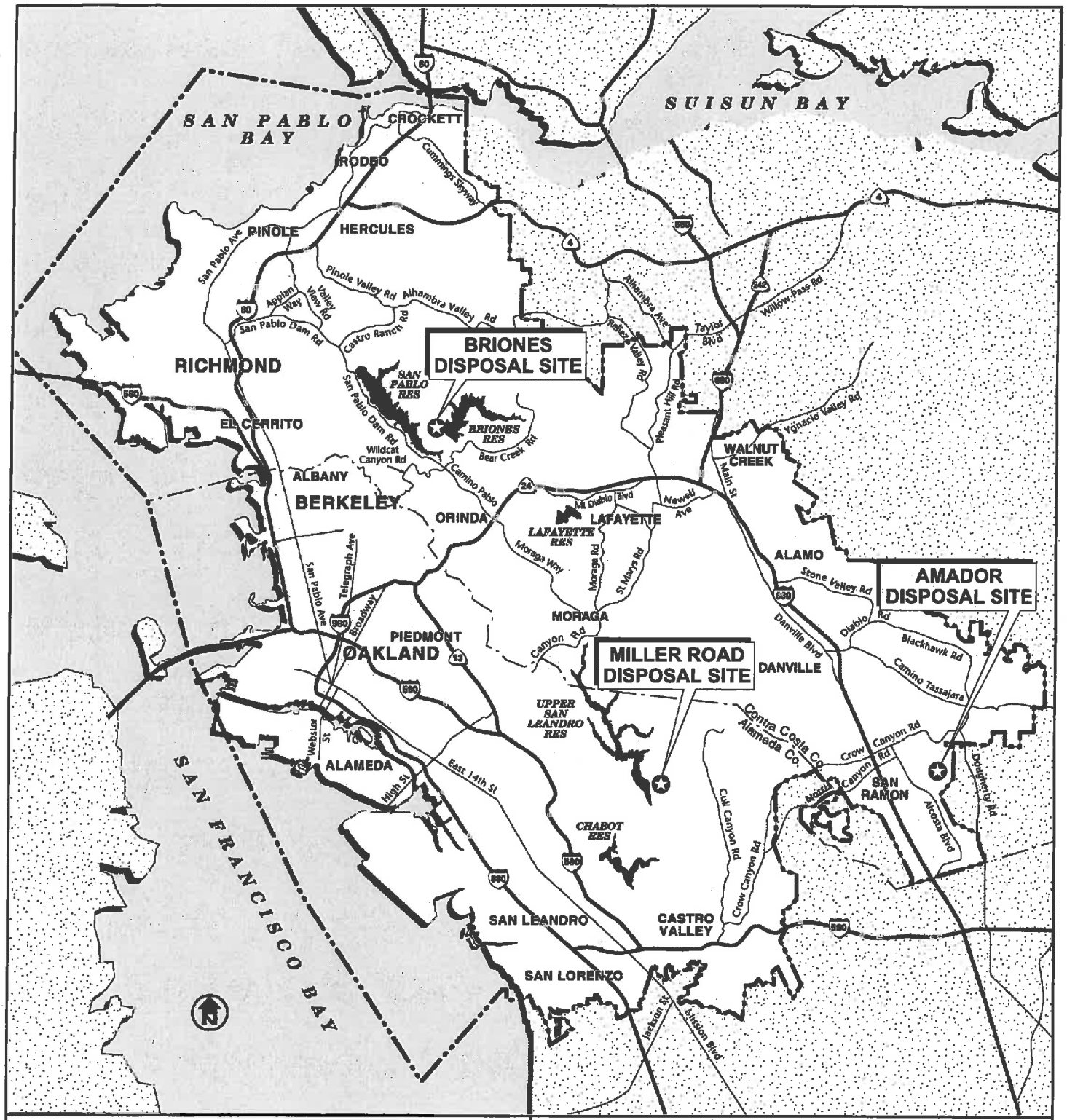
The District is participating in the early stages of a regional workgroup to assess the feasibility of using trench spoils and biosolids for Bay restoration. This effort is intended to support a larger long-term effort to restore wetlands and uplands around the San Francisco Bay using Bay dredgings and other possible sources. The restoration of the natural wetland/upland system around the Bay addresses two priority issues: 1) Adaptation to climate change-related sea level rise through protection of low-lying communities; and 2) Improving the ecosystems benefits of wetland habitat in the Bay by increased wetland habitat acreage.

NEXT STEPS

Staff will develop RFPs for both the Miller Road off-haul and TSMP update this summer and anticipates having final agreements ready for Board consideration in December 2016.

ARC:MPM:SSM

Attachment



PROJECT SITE LOCATION MAP

NOT TO SCALE

EAST BAY MUNICIPAL UTILITY DISTRICT

TRENCH SPOILS DISPOSAL SITES

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Bennett K. Horenstein, Director of Wastewater BH

SUBJECT: Microplastics Update

SUMMARY

A 2015 study conducted by the San Francisco Estuary Institute (SFEI) reported that microplastics are present in the San Francisco Bay in concentrations several times higher than other major U.S. bodies of water, with millions of particles discharged by Bay Area wastewater treatment plants into the Bay every day. Despite the study being a limited effort ($10K), the findings were publicized and generated significant media attention which has elevated microplastics into an emerging issue of concern in the Bay. Extensive work is necessary to improve analytical methods in order to quantify microplastics pollution in wastewater and the Bay, identify sources and pathways, and better understand environmental and health effects. The nature of the microplastics issue needs to be better understood in order to develop effective management strategies to reduce microplastics pollution to the Bay. Staff will provide a detailed update at the July 26, 2016 Sustainability/Energy Committee meeting.

BACKGROUND

Microplastics are tiny plastic pieces that can be categorized as fragments (breakdowns from large plastic products), microbeads (typically used as scrubbers in cosmetics), and fiber microparticles from washing synthetic cloths and fabrics (e.g., polyester, acrylic, nylon, etc.). Early indications are that fragment microparticles may be the dominant form in the Bay's surface water, while fiber microparticles may account for most of the particles discharged by wastewater treatment plants.

DISCUSSION

To better understand the prevalence of microplastics in the Bay and wastewater contribution to this issue, an analytical method to accurately identify and quantify microplastics is a key first step. However, unlike other pollutants, the lack of a clear definition and the varying size range and composition of microplastics makes it difficult to develop methods and compare results across various studies. Further, to make sure the microparticles and microfibers are microplastics

(and not for example cotton or cellulose fibers), a verification step for every particle may be needed, which is very costly and not practical as a standard approach.

While further information on the impacts of this pollutant to aquatic life and human health is emerging, indications are that microplastics present a risk as a result of physical blockages, inherent contaminants leaching from the microplastics, and chemical exposures from contaminants adsorbed to the plastic particles. The small size of microplastics makes them bioavailable to thousands of biological species across nearly all trophic levels, as they are often mistaken for food.

A more complete evaluation of potential sources and pathways of microplastics will aid in the identification of potential management actions. While this evaluation has yet to be done for the Bay, in general, the main sources of microplastics in the aquatic environment include urban trash via stormwater, ship debris, and wastewater discharge. Wastewater treatment plants are not designed to specifically remove microplastics; however, two recent studies found that 98–99% of microplastics are removed during the treatment process. Preventing microplastics from entering wastewater treatment plants in the first place may be the most effective and least expensive solution. The recent Federal (H.R.1321, 2016) and State (AB 888, 2015) ban on plastic microbeads from personal care products will reduce microplastics loads in wastewater and then to the environment. However, as microbeads make up just a small fraction of this material, the ban alone is not a complete solution. While banning synthetic fabrics does not seem feasible, some garment manufacturers (e.g., Patagonia) are taking initial steps to examine this emerging issue and are researching fabrics that minimize shedding. One other concept is to install small filters in washing machines to capture microfibers – similar to lint traps on clothes dryers.

In 2016, as a follow-on to the SFEI project, the District took the lead in a regional effort for sampling and method development to accurately identify and quantify microplastics in wastewater effluent. This study found that wastewater samples require special handling in order to remove inherent organic material- related interferences. While more work remains to be done, the major finding is that relying solely on microscopic visual identification of microparticles is inaccurate; each particle must be verified as plastic using complex and costly techniques, such as spectroscopy. This verification was not performed in the SFEI study leading to significant over-reporting of the microplastic particle counts.

NEXT STEPS

Staff will continue participating in the Bay Area microplastics effort to better understand the problems, sources, pathways, and health risks as well as best management strategies. The District laboratory will continue to lead the regional effort in refining the analytical method that can be employed routinely to accurately measure microplastics in wastewater effluent. Staff will keep the Board updated on this issue.

BKH:YS:ys
I:\SEC\2016 Board Related Items\Committees 2016\072616 Sustainability/Energy Cmte\WW – Microplastics Update

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 21, 2016

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Bennett K. Horenstein, Director of Wastewater BH

SUBJECT: Food Waste Program Update

SUMMARY

The District continues to pursue multiple opportunities to secure food waste and convert it into high-value renewable energy products. Staff continues to work with the City of Oakland/Waste Management, the City of San Francisco/Recology, and the City of Berkeley on this initiative. A Food Waste Program update will be presented to the Sustainability/Energy Committee on July 26, 2016.

DISCUSSION

District staff continues to engage with the City of Oakland and Waste Management, Inc. to modify the existing agreement for acceptance of Oakland food waste. Following the dissolution of the District's initial Harvest Power preprocessing effort, the District has requested additional time be provided by Waste Management and the City of Oakland to formulate a revised project proposal. Concurrent with these discussions, staff is investigating and evaluating food waste preprocessing technologies by meeting with equipment vendors and technology integrators, attending trade shows, and visiting food waste preprocessing facilities. The evaluation will consider different preprocessing systems and capacities, and result in recommendations for possible approaches to expand the District's food waste program. If this evaluation recommends a project for acceptance of Oakland food waste, it would form the basis of a revised proposal to Waste Management and the City of Oakland.

In addition to the preprocessing evaluation, staff is reviewing the economic analysis for a renewable natural gas (RNG) project and confirming underlying price assumptions for energy and environmental attributes. An RNG project would produce a transportation fuel displacing diesel fuel use, reducing pollutant emissions, and decreasing flaring at the wastewater plant. The value of RNG depends greatly on environmental attributes such as credits created under the Federal Renewable Identification Number (RIN) program and California's Low Carbon Fuel Standard (LCFS) program. The long-term outlook of these financial incentives is uncertain. In recent months, the District has observed declines in the value of renewable energy and associated credits including 18% and 20% decreases in the prices paid by the Port of Oakland and Marin Clean Energy for Resource Recovery Program and hydropower energy, respectively. Currently,

climate change programs at the state level, including the LCFS program, are being re-evaluated by the Governor and state legislators. Some changes being considered may result in the loss of or significant reduction in environmental attributes, increasing uncertainty surrounding the estimated fuel value and thus, overall RNG project economics.

District staff has continued discussions with the City of Berkeley regarding accepting Berkeley's commercial food waste. The District recently responded to a Berkeley RFP for organic management, however, the District's proposal did not provide details on pricing nor a date when we may be able to accept the material. Due to the Alameda County Stop Waste Ordinance, to accept Berkeley food waste, the District would need to ensure that all of the wastewater plant's digested and dewatered solids were composted and/or used for land application, or develop a dedicated digestion and dewatering system to handle Berkeley's food waste (and potentially food waste from other Alameda County sources) for separate reuse, apart from other digested and dewatered solids generated at the plant.

Pressed organic material, derived from City of San Francisco black-bin waste, continues to be delivered to the wastewater treatment plant from Recology for anaerobic digestion as part of a pilot study. Several loads totaling 50 tons were delivered in May and June while Recology tested its preprocessing system located at their San Francisco transfer station. During the startup and testing period Recology has experienced system challenges in regards to the expected recovery of the organics and issues with overall equipment reliability. As Recology completes equipment testing, they will increase production of pressed material and deliveries to the wastewater treatment plant by 2-3 times current levels. The pilot test will determine the basis for a potential long-term agreement between Recology, the City of San Francisco, and the District. The pilot study is expected to be complete by the end of 2016. It is noteworthy that San Francisco City and County does not prescribe that dewatered solids from their organic material be diverted from landfills, affording more flexibility for the District to accept this material.

District staff continuously monitors national and state agencies for funding opportunities to support food waste digestion. The California Energy Commission and CalRecycle are expected to issue grant fund solicitations for food waste-related project proposals in the near future and the District is preparing to respond.

NEXT STEPS

Next steps for the District's Food Waste Program include continuing discussions with Waste Management and the City of Oakland regarding a revised project proposal, as well as continuing conversations with the City of Berkeley regarding accepting their food waste. Food waste project proposals for Oakland and Berkeley will be based on the current investigation and evaluation of preprocessing technologies with recommendations for food waste program implementation. A more detailed update on the results of the investigation and evaluation will be provided to the Board in the next few months. Recology pilot testing will continue and is anticipated to be

complete at the end of 2016. Staff continues to monitor grant and low-interest loan opportunities and will apply for them as they become available.

BKH:JMH:jmh

I:\SEC\2016 Board Related Items\Committees 2016\072616_sustainability ctte\WW – Food Waste Update