

RESOLUTION NO. 2015-2037

RESOLUTION DETERMINING THAT THE BIOGAS ENERGY RECOVERY SYSTEM PROJECT IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

LAS GALLINAS VALLEY SANITARY DISTRICT

WHEREAS, the Las Gallinas Valley Sanitary District (District) recognizes that the Biogas Energy Recovery System Project (“BERS Project”) will have significant environmental and service benefits to the District; and

WHEREAS, the BERS Project is consistent with the goals for facilities improvements at the Las Gallinas Valley Sanitary District Wastewater Treatment Plant site; and

WHEREAS, the BERS Project would facilitate compliance with the Bay Area Air Quality Management District’s (BAAQMD) Rule 9-8-302 requiring the replacement of the District’s existing Waukesha internal combustion engine by January 1, 2016; and

WHEREAS, the BERS Project would be consistent with and implement the policies of the District to utilize renewable biogas resource such as compressed natural gas (CNG) fueling station; and

WHEREAS, the District has considered the application of the California Environmental Quality Act (“CEQA”) (Public Resources Code, § 21000 *et seq.*), and the CEQA Guidelines (California Code of Regulations Title 14, § 15000 *et seq.*) to the approval of the BERS Project as described in Exhibit A; and

WHEREAS, the District has identified the appropriate categorical exemptions per CEQA Guidelines (California Code of Regulations, Title 14, § 15302, § 15303, § 15304, § 15308, § 15321) that address projects such as the BERS Project; and

WHEREAS, the District has considered whether there are any known facts associated with the BERS Project or its location that, pursuant to section 15300.2 of the CEQA Guidelines, would give rise to circumstances or considerations that disallow reliance on these categorical exemptions, and has determined that no such facts exist; and

WHEREAS, the District has determined, more specifically, that the location of the BERS Project is not a “particularly sensitive environment” within the meaning of CEQA Guidelines § 15300.2, subdivision (a); (ii) that the BERS Project, combined with successive projects of the same type in the same location, will not create a significant cumulative impact; (iii) that there are no unusual circumstances creating a reasonable possibility that the BERS Project will have a significant effect on the environment due to unusual circumstances; (iv) that the BERS Project will not result in damages to scenic resources within a highway officially designated as a state scenic highway; (v) that the location for the BERS Project is not on a hazardous waste site included on a list compiled pursuant to Government Code § 65962.5; and (vi) that the BERS Project will not cause any substantial adverse change in the significance of any historical resource; and

WHEREAS, the District has also considered whether the BERS Project would cause any significant effects relating to traffic, noise, air quality, biological resources or water quality, and has determined that no such effects would occur; and

WHEREAS, the District has determined that the BERS Project is not inconsistent with the County of Marin’s General Plan or zoning designations for the Las Gallinas Valley Sanitary District site; and

WHEREAS, the District has determined that the location of the BERS Project can be adequately served by all required utilities and public services;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Las Gallinas Valley Sanitary District as follows:

1. The above recitals are true and correct, and Board hereby so finds.
2. The Board finds that the BERS Project on the Las Gallinas Valley Sanitary District Wastewater Treatment Plant site described in Exhibit A is categorically exempt from CEQA pursuant to the following exemptions: the “replacement or reconstruction of existing structures and facilities”; “new construction or conversion of small structures”; “minor alterations to land”; “actions by regulatory agencies for the protection of the environment”; and “enforcement actions by regulatory agencies” exemptions in California Code of Regulations, Title 14, § 15302, § 15303, § 15304, § 15308, § 15321, respectively;
3. The Board directs the General Manager or his designees to file the required CEQA Notice of Exemption (“NOE”) with the County of Marin Clerk’s Office and the State Clearinghouse of the Governor’s Office of Planning and Research.

I hereby certify that the forgoing is a full, true and correct copy of a resolution duly and regularly passed and adopted by the Sanitary Board of the Las Gallinas Valley Sanitary District, Marin County, California, at a meeting thereof held on May 14, 2015, by the following vote of the members thereof:

AYES, and in the favor thereof, Members: *Clark, Elias, Greenfield, Murray & Schribsman*
 NOES, Members: *None.*
 ABSENT, Members: *None.*
 ABSTAIN, Members: *None.*

Teresa Lerch

 Teresa Lerch, District Secretary
 Las Gallinas Valley Sanitary District

APPROVED: *Rabi Elias*

 Rabi Elias, Board President



Exhibit A – CEQA Project Description

Introduction

This is a project description for the design and key operating parameters of the Biogas Energy Recovery System (BERS) proposed for the Las Gallinas Valley Sanitary District (LGVSD) wastewater treatment plant (WWTP). The anaerobic digester gas produced at the WWTP will be treated using a gas conditioning skid that will provide conditioned digester gas (CDG) for use in combined heat and power (CHP) microturbines and the existing fire-tube boiler. A portion of the conditioned digester gas will be further conditioned to renewable natural gas (RNG) standards by removal of carbon dioxide. The RNG is planned for use as compressed natural gas (CNG) vehicle fuel, conforming to SAE J1616 guidelines and California Air Resource Board (CARB) regulations for CNG vehicle fuel specifications. The RNG will be used to fuel a second package-type hydronic boiler for meeting incremental anaerobic digester heat demands. The following describes the existing site conditions, process flow, and equipment specifics of the system. A layout of the proposed and existing equipment is presented on Figure 1.

Existing Equipment

The following section describes existing on-site equipment in operation at the site. These pieces of equipment are included in previously prepared CEQA documentation and are permitted under existing air permits through the Bay Area Air Quality Management District (BAAQMD).

Internal Combustion (IC) Engine

LGVSD operates a 50 kilowatt (kW) CHP IC engine fueled by raw digester gas. The IC engine provides both heat recovery and electric generation for the digester operation. In accordance with direction from the BAAQMD, the engine needs to be removed from operation by January 2016 for the site to remain in compliance with air regulations. The IC engine will remain in place until operation and integration of the biogas recovery system is complete for a seamless transition to occur between the existing and proposed electrical generation and heat recovery equipment.

Boiler

The existing fire-tube boiler is rated at 895,000 British thermal units per hour (Btu/hr) input energy. This boiler will remain in place for use within the proposed system to provide heating demand for the digester sludge.

Waste Gas Burner

The existing waste gas burner, a Varec Biogas 244E Series enclosed burner, will remain in place within the BERS to provide backup destruction of waste gas should an issue arise that does not allow the digester gas to be used by the other components in the system.

Based on the Varec burner data sheet, the waste gas burner has infinite turndown capabilities, and therefore, is able to combust the recorded low flows of approximately 2 standard cubic feet per minute (scfm) to full site design flow of 30 scfm should it be required that all the digester gas be destroyed by the waste gas burner.

Gas Storage Tank

The onsite storage tank is a horizontal cylindrical tank with a rated volume of 1,000 cubic feet at a pressure of 150 pounds per square inch. The storage tank was manufactured in 1983, and

has been at the site since 1985 for digester gas storage. The BERS will use this storage tank for RNG storage.

Proposed BERS Equipment

Digester Gas Conditioning Skid and Microturbines

The Digester Gas Conditioning Skid will include the following components to condition the raw digester gas to produce CDG for use in the microturbines and RNG for use in CNG vehicles and the new boiler.

The digester gas conditioning system will remove hydrogen sulfide (H₂S) from the wet digester gas at a low pressure; therefore, upstream of moisture removal and the compressor on the gas conditioning skid. The H₂S vessel treats the digester gas through adsorption by an iron-based media, typically iron oxide coated wood chips or clay media (e.g. Sulfatreat) within the vessel. This material is consumable, and is expected to need replacement approximately every 24 months.

Digester gas is saturated with moisture, the amount of which will vary with the operating temperature of the digesters. As the digester gas cools from the operating temperature of the digesters to ambient temperature, some of the moisture in the gas condenses and must be captured and removed. The glycol heat exchanger will cool the gas to approximately 40 degrees Fahrenheit (°F) dewpoint temperature to remove moisture as condensate. The chilled gas will be reheated to approximately 80 °F by a gas to gas heat exchanger before continuing through the remainder of the gas conditioning process.

The gas compressor on the conditioning skid is used to raise the pressure of the gas delivery to the microturbines and the fueling station. The gas conditioning skid will be equipped with two gas compressors to provide redundancy within the system.

Following the gas compressor, the digester gas will pass through three (3) siloxane removal filters to remove siloxanes, a gaseous form of silicon, that upon combustion forms silica (a.k.a. sand), which will damage gas combustion equipment such as the microturbines and CNG vehicle engines. After the siloxanes are removed the gas is considered "conditioned digester gas," or CDG.

CDG will leave the conditioning skid and be split between the microturbines and the Carbon Dioxide (CO₂) Removal Module.

CO₂ has no heating value; therefore, for the RNG to be suitable for vehicle fuel, the CO₂ is removed to increase the heating value of the RNG. Therefore, the CDG is further conditioned by passing through a CO₂ removal membrane system. The membrane removes CO₂, nitrogen, volatile organic compounds (VOCs), any remaining H₂S, and the remaining moisture. The permeate (or "tail gas") contains mostly CO₂, methane (approximately 25 to 35 percent), as well as nitrogen, water vapor, and H₂S. This tail gas will be recirculated within the gas conditioning system, re-entering the process after the H₂S vessel. Recycling the tail gas is done to limit unnecessary flaring or loss of methane from the system.

The biogas recovery system will include three (3) 65 kilowatt (kW) Integrated CHP microturbines to provide electricity and heat for the digester sludge, with two installed during initial construction with a foundation and pipe connections for future installation of a third microturbine

to be installed in the future. The microturbines will be fueled with CDG, the digester gas conditioned through the removal of H₂S, moisture, siloxanes, and VOCs. The microturbines will be equipped with an optional external sour gas fuel kit that provides stainless steel valves and other components necessary for fuel supplies with H₂S content. This kit is recommended by the manufacturer to increase the longevity of the equipment when there is potential for H₂S, however minimal, in the fuel.

A 500,000 Btu/hr hydronic boiler will be installed as part of the hot water supply system. A high efficiency package boiler designed for use with natural gas will operate on RNG and provide flexibility while making better use of the available methane. The proposed boiler will operate in conjunction with the fueling station, with the existing storage tank acting as a buffer for fuel supply. Operation of the proposed boiler will be automated. The existing boiler will remain in place as back-up and can operate using propane for fuel if the digester gas supply becomes unavailable during a system shutdown.

Vehicle Fueling Stations

The District has two trucks with 50 gallons of fuel capacity that may be converted to, or replaced with, trucks fueled with CNG or RNG. The District plans to either convert existing trucks to use CNG or RNG, or purchase new trucks and personnel vehicles.

The time-fill RNG fueling station proposed for the WWTP will include a compressor sized to provide 20 to 24 scfm (approximately 11 gasoline gallon equivalents per hour (GGE/hr)). The WWTP fueling station will have two dual dispensers to provide fueling capacity for up to four vehicles at a time, with metered fill posts.

Attachments:

Figure 1 – USGS Map

Figure 2 – Facility Layout