Initial Study for Hyperion Treatment Plant Digester Gas Utilization Project:
Power and Steam Generation

Prepared for:
City of Los Angeles
Los Angeles, California

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CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

LA DPW ENGINEERING
SERVING THE PRESENT; DESIGNING THE FUTURE

Bureau of Sanitation *City of Los Angeles* *Bureau of Engineering Environmental Management Group*

I. INTRODUCTION

A. Purpose of an Initial Study

The California Environmental Quality Act (CEQA) was enacted in 1970 for the purpose of providing decision-makers and the public with information regarding environmental effects of proposed projects; identifying means of avoiding environmental damage; and disclosing to the public the reasons behind a project's approval even if it leads to significant environmental impacts. CEQA, Public Resources Code §21000 et seq., requires that the environmental impacts of proposed "projects" be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts be identified and implemented. The Regulatory Affairs Division (RAD) of the Bureau of Sanitation (BOS) under the City of Los Angeles' Department of Public Works (LADPW) has determined that the proposed Project is subject to CEQA and that no exemptions apply. Therefore, the preparation of an Initial Study is required.

An Initial Study (IS) is a preliminary analysis conducted by the lead agency, in consultation with other agencies (responsible or trustee agencies, as applicable), to determine whether there is substantial evidence that a project may have a significant effect on the environment. An environmental impact is defined as an impact to the physical conditions that exist within the area that would be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, or objects of historic significance. If the IS concludes that the project, with mitigation, may have a significant effect on the environment, an Environmental Impact Report (EIR) should be prepared; otherwise the lead agency may adopt a Negative Declaration (ND) or Mitigated Negative Declaration (MND).

The IS contained herein has been prepared in accordance with CEQA (Public Resources Code §21000 et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.), and the City of Los Angeles (City) CEQA Guidelines (1981, amended July 31, 2002, updated 2006). The lead agency for a proposed project is the public agency principally responsible for carrying out or approving a project that may have a significant adverse effect upon the environment (Public Resources Code §21067). Per Public Resources Code §15051, the City of Los Angeles (City) will be the lead agency. The proposed Project also requires discretionary approval from the South Coast Air Quality Management District (SCAQMD) for installation of new stationary source equipment. To fulfill the purpose and intent of CEQA, the City has prepared a Notice of Preparation of an EIR and Initial Study (NOP/IS) to address the potentially significant adverse environmental impacts associated with the proposed Project at the HTP.

B. Document Format

This IS is organized into seven sections as follows:

<u>Section I, Introduction</u>: provides an overview of the Project and the CEQA environmental documentation process.

<u>Section II, Project Description</u>: provides a description of the Project location, Project background, and Project components.

<u>Section III, Existing Environment</u>: provides a description of the existing environmental setting with focus on features of the environment which could potentially affect the proposed Project or be affected by the proposed Project.

<u>Section IV, Environmental Effects/IS Checklist</u>: presents the City's Checklist for all impact areas and mandatory findings of significance.

<u>Section V, Preparation and Consultation</u>: provides a list of key personnel involved in the preparation of this report and key personnel consulted.

<u>Section VI, Determination – Recommended Environmental Documentation</u>: provides the recommended environmental documentation for the proposed Project; and,

<u>Section VII, References</u>: provides a list of reference materials used during the preparation of this report.

C. CEQA Process

To begin the CEQA process, the lead agency identifies a proposed project. The lead agency then prepares an IS to identify the preliminary environmental impacts of the proposed project. If the IS determines that a proposed project would have significant environmental impacts that would require further study and/or the implementation of mitigation measures, the lead agency may decide to prepare either an MND or EIR. If it is foreseen that no feasible mitigation measures may exist to reduce certain significant impacts identified in the IS, the lead agency must prepare an EIR. A Notice of Preparation is prepared to notify public agencies and the general public that the lead agency is starting the preparation of an EIR for the proposed project. The Notice of Preparation and IS are circulated for a 30-day review and comment period. During this review period, the lead agency requests comments from agencies, interested parties, stakeholders, and the general public on the scope of the environmental issues presented in the IS and to be evaluated in the EIR. After the close of the 30-day review and comment period, the lead agency continues the preparation of the Draft EIR and associated technical studies (if any). Once the Draft EIR is complete, a Notice of Availability is prepared to inform the public agencies and the general public of the document and the locations where the document can be reviewed. The Draft EIR and Notice of Availability are circulated for a 45-day review and comment period. The purpose of this review and comment period is to provide public agencies and the general public an opportunity to review the Draft EIR and comment on the adequacy of the analysis and the findings of the lead agency regarding potential environmental impacts of the proposed project.

After the close of the 45-day review and comment period, responses to all comments received on the Draft EIR are prepared. The lead agency prepares a Final EIR, which incorporates the Draft EIR or a revision to the Draft EIR, Draft EIR comments and list of commentors, and response to comments discussion. In addition, the lead agency must prepare the findings of fact for each significant effect identified, a statement of overriding considerations if there are significant impacts that cannot be mitigated, and a mitigation monitoring and reporting program to ensure that all proposed mitigation measures are implemented.

The Board of Public Works considers the Final EIR, together with any comments received during the public review process, and makes a recommendation to the City Council on whether or not to certify the Final EIR and approve the project. One or more Council committees may then review the proposal and documents and make its own recommendation to the full City Council. The City Council is the decision-making body and also considers the Final EIR, together with any comments received during the review and comment process, in the final decision to certify the Final EIR and approve or disapprove the project. During the project approval process, persons and/or agencies may address the Board of Public Works, Council Committees, or the City Council regarding the project. Public notification of agenda items for the Board of Public Works, Council committees, and City Council is posted 72 hours prior to the public meeting. The Council agenda can be obtained by visiting the Council and Public Services Division of the Office of the City Clerk at City Hall, 200 North Spring Street, Suite 395; by calling 213-978-1047, 213-978-1048, or 213-978-1055 (hearing impaired); or via the internet at http://www.lacity.org/CLK/index.htm.

If the project is approved, the City would file a Notice of Determination with the Los Angeles County Clerk within 5 days. The Notice of Determination would be posted by the Los Angeles County Clerk within 24 hours of receipt. This begins a 30-day statute of limitations on legal challenges to the approval under CEQA.

As a covered entity under Title II of the Americans with Disabilities Act, the City does not discriminate on the basis of disability and, upon request, would provide reasonable accommodation to ensure equal access to its programs, services, and activities.

II. PROJECT DESCRIPTION

A. Location

The proposed Project is located at the Hyperion Treatment Plant (HTP), located at 12000 Vista del Mar, in Playa Del Rey within the jurisdiction of the City of Los Angeles. The HTP is 144 acres in size and is approximately 500 feet from the ocean on a low bluff. The site is bounded to the north by Imperial Highway and Los Angeles International Airport, to the south by Los Angeles Department of Water and Power (LADWP) Scattergood Generating Station (SGS), to the west by Vista del Mar and Dockweiler Beach and to the east by the residential community of El Segundo that is buffered by a north/south ridge that extends for approximately four miles.

HTP is owned and operated by the Bureau of Sanitation (BOS) of the City of Los Angeles' (City) Department of Public Works (LADPW).

The Project will modify the interior of the existing HTP Energy Recovery Building (ERB) located near the northern boundary of the HTP facility and along Imperial Highway. The abandoned Hyperion Energy Recovery System (HERS) and sludge combustion equipment is currently located in the ERB. Most of the decommissioned equipment will be removed to create space for the new equipment. The ERB will not be demolished but rather, part of the Project will be constructed inside of the ERB. The DGUP will also utilize space to the east and north of the ERB. The Project location is illustrated in Figure 1-1 and Figure 1-2.

The HTP wastewater collection system tributary area, called the Hyperion Service Area (HSA), includes the San Fernando Valley, the coastal areas of Santa Monica and Pacific Palisades, most of the City of Los Angeles, the cities of Beverly Hills, Burbank, Glendale, Culver City, and other neighboring areas and cities in the region.

Geographical Setting

The HTP is located on the western edge of the Los Angeles Coastal Plain approximately 500 feet from the ocean. The site appears on a low bluff that rises from west to east approximately 40 to 100 feet above mean sea level (MSL). The HTP facility was excavated from a portion of an existing dune system that once paralleled the coast from Ballona Creek to the Palos Verdes Hills. The site is buffered from the residential community of El Segundo to the east by a north/south trending man-made embankment that is approximately 1,000 feet wide and rises abruptly from approximately +32 MSL at the eastern HTP property line to +100 MSL along the ridge to the east of the plant. A number of City of El Segundo residents have views of the site from the northeast, southeast, and along an east central view line through a notch in the aforementioned ridge.

Zoning

A small portion of the property on the east side is located within the City of El Segundo jurisdiction. The El Segundo property is zoned as open space (OS) and consists of the base of the cliff area overlooking the plant. The BOS has obtained a conditional use permit from the City of El Segundo for placement of some plant facilities on the property. The proposed Project will not be on this part of the HTP. The majority of the HTP site is zoned for Public Facilities (PF-1). Surrounding land uses include residential, industrial, airport, and home of the protected El Segundo Blue Butterfly and beach.

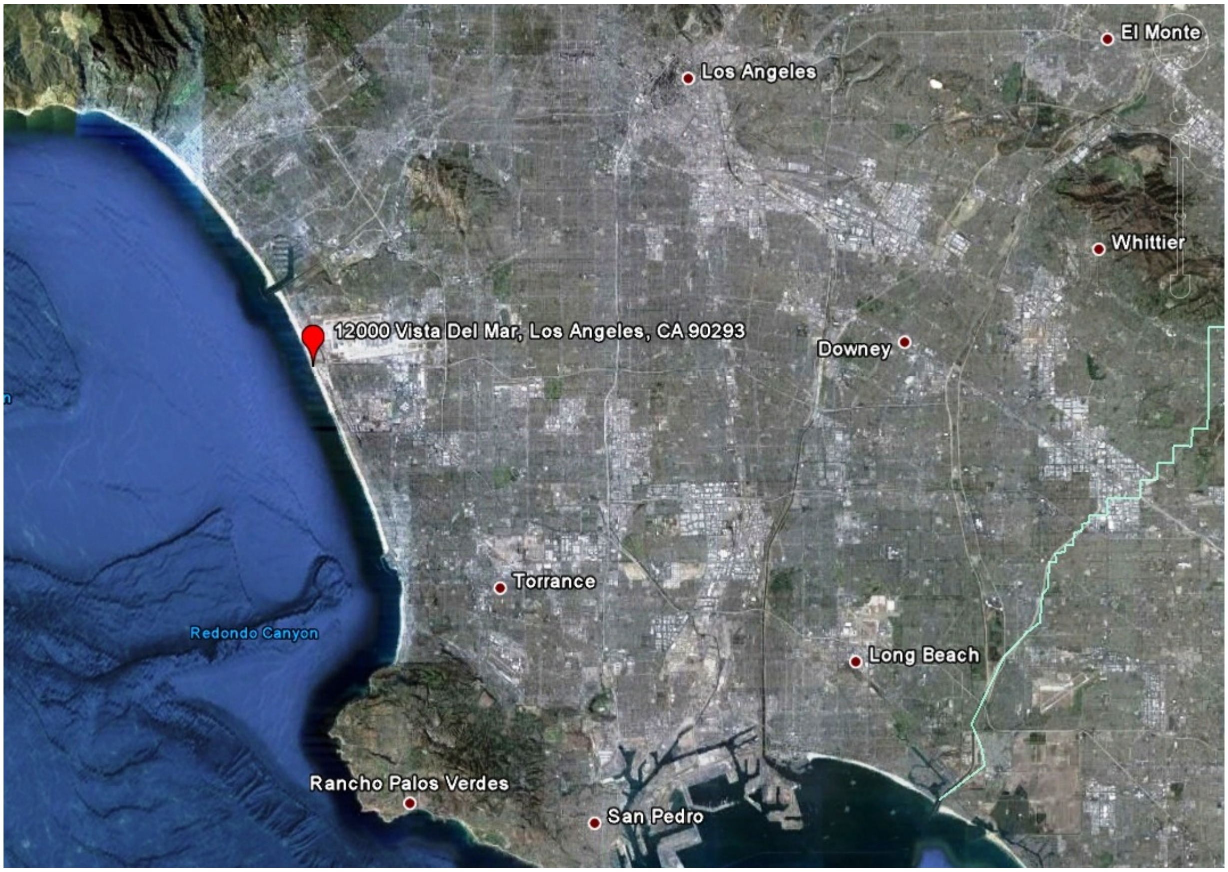

Figure 1-1: Project Location at the HTP Facility (12000 Vista Del Mar, Los Angeles, CA)

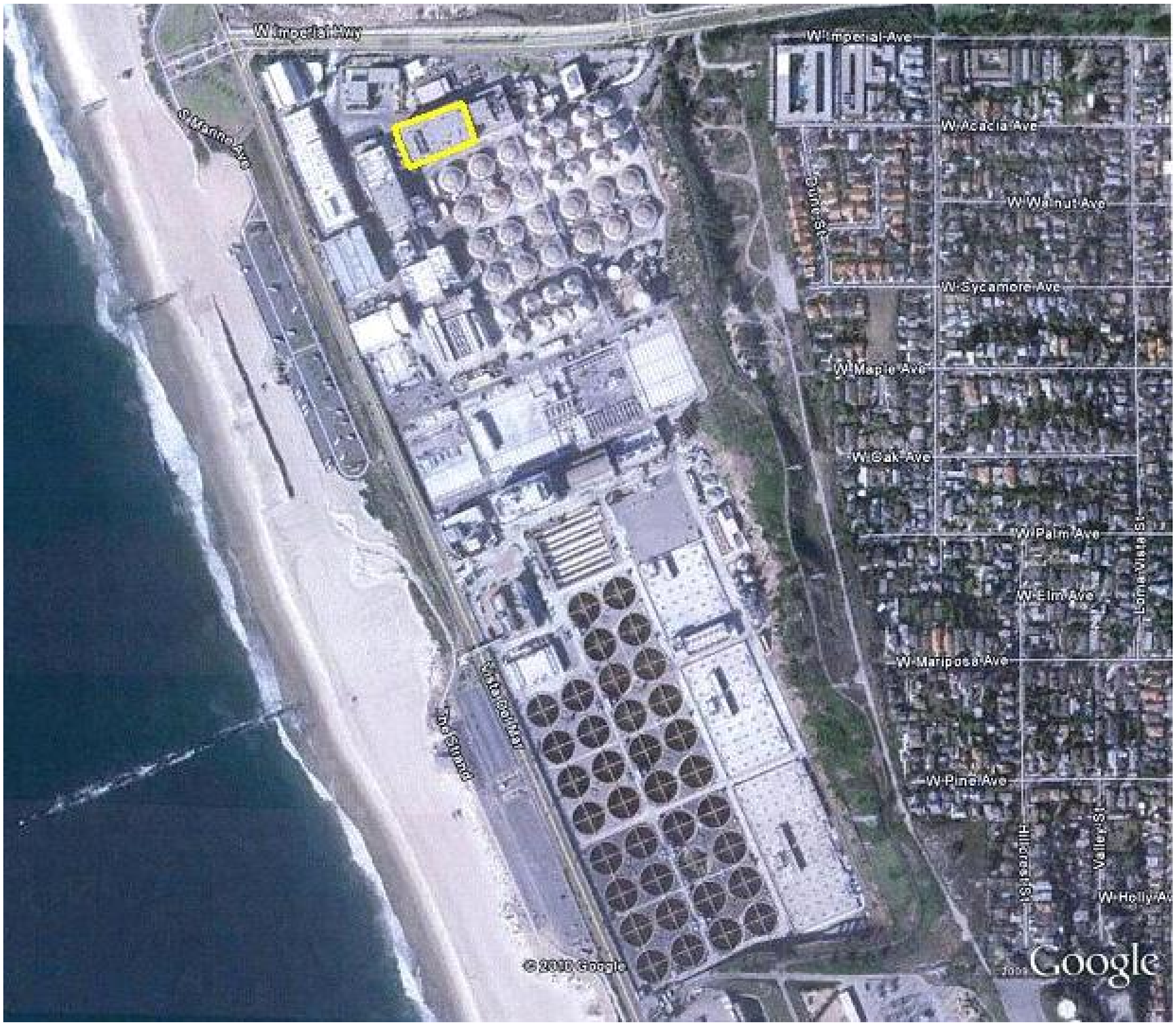

Figure 1-2: Current HTP Facility (ERB shown in yellow)

B. Background

HTP is a BOS wastewater treatment facility located in Playa del Rey within the jurisdiction of the City. HTP is the largest wastewater treatment facility in the City. The BOS proposes to modify the facility to beneficially utilize the renewable digester gas (or digas) to either (1) provide process steam for digesters; and provide electrical energy for current and future plant operations, or (2) provide a monetary benefit from the digas that can be used to offset the purchase of electricity for plant operations while minimizing flaring of the digas which is an unbeneficial use.

Under a current agreement between the BOS and LADWP, HTP pipes its digas to SGS, which utilizes the digas with natural gas to generate electricity for the LADWP grid, and provides HTP with steam for plant use. Due to regulatory requirements, the SGS must shut down and re-power Units #1 and 2, which currently utilize the digester gas. Therefore, by January 31, 2015, the HTP must develop a means by which to utilize the renewable digas resource and provide steam for plant use, including steam for the anaerobic digesters from which the digas is produced. To provide the best beneficial use of the renewable digas resource, BOS will consider a wide range of equipment that will address utilization of the digas, plant electricity demand, and plant steam demand. The BOS issued a Request for Proposals on

January 14, 2011; BOS will evaluate several proposals and select one for design, construction, operation, and financing.

Only proposals that use proven technology with digas will be considered. Proposed projects may utilize digas directly, or clean-up the digas for either on-site or off-site use. Proposed projects may utilize digas to generate electricity and/or steam for plant use. Proposed projects may consider utilizing all digas on-site, directly or cleaned-up, and/or exporting it by pipeline. Proposed projects may utilize digas to produce electricity on-site and/or provide electricity from the grid. Proposed projects must provide steam for plant use. The No-Project Alternative, the absence of a Digester Gas Utilization Project (DGUP), all digester gas not used in existing boilers to produce on-site process steam would be combusted in the currently permitted flares, which are immediately adjacent to residents of El Segundo, resulting in no beneficial use of this resource.

The City has analyzed two types of potential proposals: the first would provide maximum on-site digas utilization and produce electricity, while the second would produce a monetary benefit by producing pipeline quality methane gas that could be sold off-site with a minimum of on-site digas utilization to produce process steam. This document analyzes the first scenario, which maximizes the on-site utilization of digas to produce electrical power and process steam. The second scenario would not provide on-site electrical power generation and minimizes on-site use of digas, providing a monetary benefit. The No Project alternative and other practical proposals will be analyzed in the EIR.

Any proposed project must go through CEQA review and meet applicable regulatory permitting and approval requirements; in particular, all combustion and air pollution control equipment must meet the permitting requirements of the SCAQMD.

Project Objectives

The intent of the BOS is to construct, and place in operation by January 31, 2015, a project that beneficially utilizes HTP's renewable digas that would otherwise be flared on-site. For the purpose of this Initial Study (IS), the Project scenario called cogeneration was chosen for analysis, hereafter referred to as "the Project." This system of equipment would utilize HTP's renewable digas in a digester gas/natural gas-fueled combined cycle cogeneration facility at HTP. The new operations will offer efficient utilization of the digas and improve operations for BOS. DGUP will consume all digas produced at HTP, address energy needs by providing 39 megawatts (MW) average electrical generation, and provide an average of about 50,000 pounds per hour (lb/hr) of 30 pounds per square inch gauge (psig) saturated process steam. The purpose of the Project is to meet six main goals at HTP:

- Produce renewable energy from HTP's digas,
- Provide all of HTP's electricity and process steam needs;
- Allow HTP to operate without using external electrical power, which is subject to price changes and interruptions (NPDES permit requires two independent sources of power);
- Allow the HTP to operate "off the grid" so that, in the case of an emergency (e.g., earthquake, blackouts), the facility can continue operating and flaring can be avoided;
- Prevent flares from operating continuously to dispose of digas when it can no longer be sent to SGS (i.e., post-January 2015); and
- Maintain the final output of Class A biosolids, even in the event of external power interruption, as opposed to the Class B biosolids that would likely result if not enough electricity and/or steam was available.

This IS has been prepared in accordance with the requirements of the CEQA (California Public Resources Code § 21000 et seq.) to evaluate the potential environmental impacts associated with the BOS DGUP Power and Steam Generation Project.

C. Project Description

The proposed Project consists of installing and operating a digester gas/natural gas-fueled combined cycle cogeneration system at HTP as shown in Figure 1-3. The cogeneration system will include the combustion of digas in combustion turbine generators (CTGs) to generate electricity, the recovery of heat to generate steam, the generation of power from a steam turbine generator train (two STGs), and the extraction of a portion of the steam to meet the steam demand of the digesters.

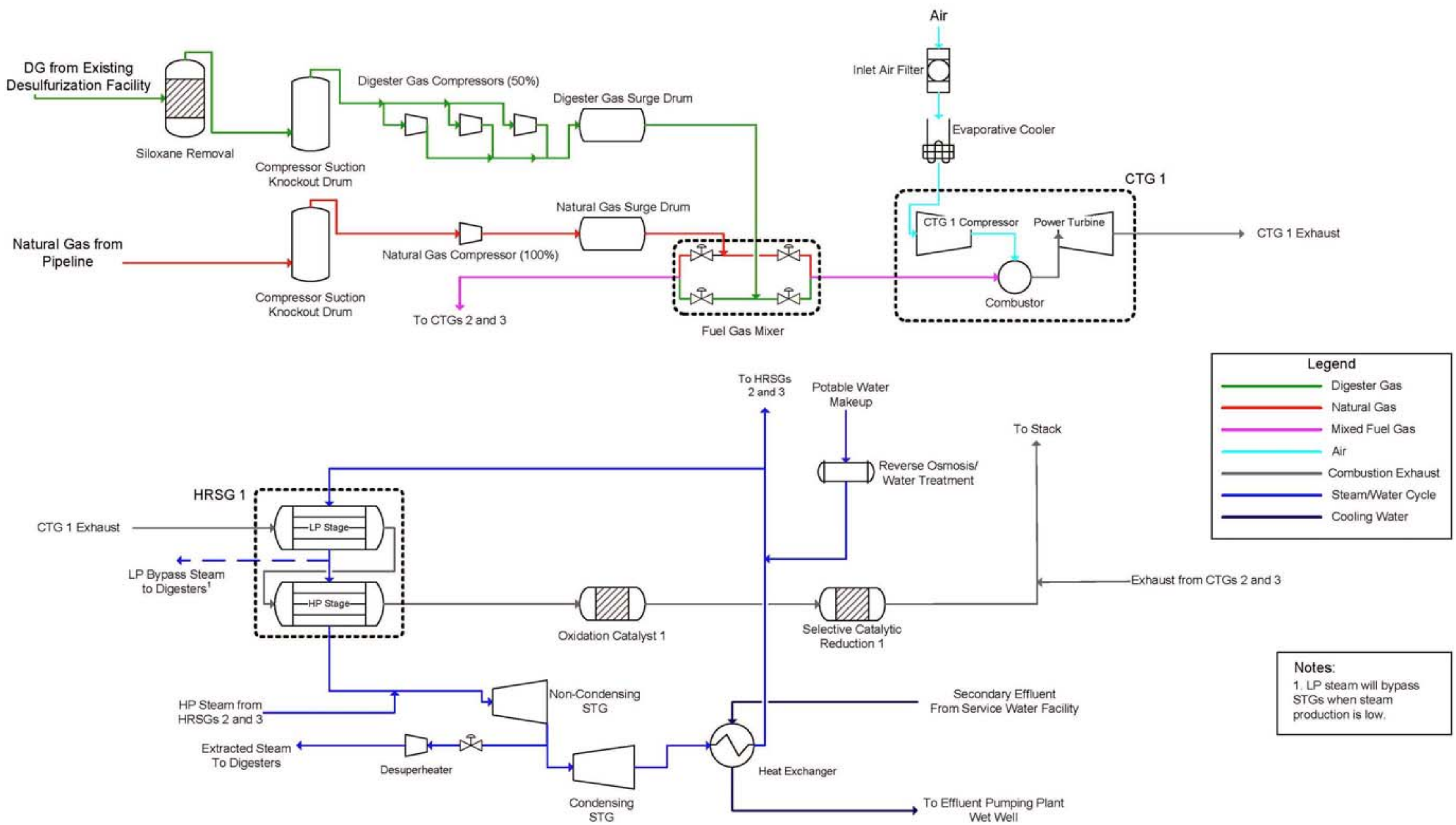

Figure 1-3: Schematic of Proposed Project

The proposed Project will provide the HTP with up to 39 MW average electrical generation and 50,000 lb/hr of 30 psig saturated process steam required by current throughput from up to three Solar turbines (approximately 9.9 MW each) and the STGs (about 9 MW together).

The CTGs are expected to be capable of operation on 100 percent digester gas, 100 percent natural gas, or any blend of these two fuels (up to 40% natural gas). The digester gas produced at the HTP is composed primarily of methane (CH_4) and carbon dioxide (CO_2). The anticipated composition of the digester gas is presented in Table 1-1.

Table 1-1. Digester Gas Composition (Main Constituents)

Digester Gas Constituent	Composition (vol %)
CO_2	35.7
Oxygen	<0.04
Nitrogen	0.39
CH_4	63.7

The digas is a renewable resource continually provided by HTP. Hydrogen sulfide (H_2S) will be removed before the digas passes though a granular activated carbon (GAC) system to remove siloxanes and other digas contaminants, to meet acceptable levels for permitting, reliability, and economic equipment life. Natural variations in digester gas heat value and volume production will require natural gas supplementation of the digester gas to provide a fuel with sufficient heat content to meet HTP's process steam and electrical demands. Natural gas will also be required for CTG startup and shutdown and at other operating conditions where digester gas cannot meet the CTG fuel requirements. Natural gas will be provided from an existing Sempra Energy pipeline tie-in. The gases will be compressed and mixed in the fuel gas feeding system, which will supply the blended gas to the CTGs.

The energy in the hot exhaust gases from each CTG will be used to generate steam in a dedicated heat recovery steam generator (HRSG). The steam will be produced at two pressures: high and low. The high-pressure (HP) steam will be directed to two STGs in series, shared by all three CTGs. After passing through the first STG, a portion of the steam will be extracted to provide process steam to HTP.

The STGs will include water-cooled condensers using an open-loop cooling water system. The cooling water will be extracted from the HTP's secondary effluent system, and the warmed water will be returned to the secondary effluent system downstream from the cooling water extraction point. Cooling towers are not required and are not a part of the proposed facility.

Each CTG will be utilized to burn a blend of digas and natural gas (up to 40% by volume) or 100 percent digas to provide HTP with up to approximately 30 MW average electrical generation and an average of 50,000 lb/h of 30 psig saturated process steam demand for the HTP digesters. Operation of two CTGs will be needed to supply HTP, based on current needs; this will consume all the digester gas currently produced; the other CTG will generally remain on standby, will be used during peak electrical demand, or will be used if future growth increases the amount of digas produced at the HTP. The STGs will be capable of generating a total of approximately 9 MW of electricity when used with 3 CTGs (depending upon the amount of LP steam extraction). Therefore, the maximum net power generation capacity of the Project will be 39 MW.

Other Equipment – Control Equipment, Engine Generator

Multiple control equipment will be installed on the CTGs to reduce criteria pollutant emissions. The exhaust from each HRSG will be routed to its own designated oxidation catalyst unit, used to control CO and VOC emissions. Typically the catalyst is a platinum-based metal that induces the conversion of CO to CO_2 and VOC hydrocarbons to CO_2 and water.

A Selective Catalytic Reduction (SCR) unit will be used to control NO_x emissions from each CTG. The exhaust from each oxidation catalyst will be routed to its own SCR system prior to being exhausted through the stack shared by all three CTG units. Reduction of NO_x emissions will be achieved by injecting urea into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, urea and O_2 react on the catalyst surface to form nitrogen and water.

An 800 kilowatt (kW) black start diesel engine generator and a 2,000 gallon ultra-low sulfur fuel oil (ULSFO) storage tank may be installed as part of the proposed Project, as well as an oil/water separator. The carbon monoxide (CO) and volatile organic compound (VOC) emissions from each CTG and HRSG will be controlled by an oxidation catalyst. The engine generator will only be used to provide electricity to power the auxiliary equipment needed to start the turbines in case of a power failure at the facility.

Figure 1-4 illustrates the site plan showing the proposed locations of the above pieces of equipment.

Figure 1-4: Proposed Project Site and Plan of Existing Operation at HTP Facility

Project Elements

Table 1-2 summarizes the emission units and corresponding design specifications proposed for this Project. They are described below in more detail.

Table 1-2. Proposed Project Power and Steam Production Equipment

Emission Units	Rating
Each of the three CTGs/HRSGs(a)	9.9 MW each 95.1 MMBtu/hr
Two STG	9 MW total
Fuel Gas Compression and Supply System	NA
Selective Catalytic Reduction (SCR)	NA
Oxidation Catalyst (OC)	NA
Emergency Black Start Diesel Engine Generator	800 kW firing ULSFO
Oil/Water Separator	200 gpm
ULSFO Storage Tank	2,000 gallons aboveground

(a)Heat input for each CTG/HRSG based on lower heating value (LHV) at 100 percent load. Data assumed at 63 °F.
DG = Digester gas; NG = Natural gas.

Digester Gas Cleaning System

The Digester Gas Cleaning System will consist of GAC beds that will be designed to reduce the siloxane and other digester gas contaminants to a level that will not interfere with the operation of the CTGs and the oxidation catalyst. The GAC beds will be placed directly after the currently permitted LoCat desulfurization system that reduces sulfur to an average of 12 ppmv in the digester gas.

Fuel Gas Compression and Supply

The Fuel Gas Compression and Feeding System is designed to compress the cleaned digester gas and natural gas to the pressure required for the combustion turbines, to moderate the fluctuations in digester gas production, and to provide a well blended mixture of digas/natural gas to the combustion turbines.

Digas from the Digester Gas Cleaning System will pass through the digas compressor suction knockout drum, which will remove any condensables (i.e., water) from the gas. The digas will then be routed to three 50 percent digester gas compressors in parallel where the digas will be compressed to approximately 450 psig. The capacity of the compressors should take into account the variable nature of the digas flow and the expected future increase in the average flow rate. As a result, the compressors are sized to operate at 50% capacity, providing full redundancy at current average digas production rates. If the flow increases in the future, sufficient capacity will still be available, with slightly reduced redundancy (i.e., approximately 90% of full redundancy).

Natural gas at 250 psig from the main pipeline will pass through the natural gas compressor suction knockout drum, where any condensables will be removed from the natural gas. The natural gas will then be compressed to 450 psig by one 100% natural gas compressor.

After both the digester gas and natural gas are compressed, the gases will be controlled by the Fuel Gas Feeding System that consists of surge drums and piping and valves that moderate fluctuations in the digas production and control the blend of fuel going to any CTG based on feedback control from the turbines. The compressed gases enter the surge drums, one each for the digester gas and natural gas. Valves will allow the CTGs that are in operation to operate on digester gas or a blend of digas and natural gas (up to 40% by volume natural gas). In the blended gas operating scenario, the mixing occurs upstream of the CTGs; the mixing is far enough upstream that it allows for complete mixing of the gases.

Combustion Turbine Generators

Three Solar Mars 100 CTGs will be used for combined cycle cogeneration at the HTP. Normal operation will be with the two digester gas fired combustion turbines used for baseload and the third combustion turbine used for peak demand. However, projected digas production may increase in the future such that all three CTGs are used in normal operation. The CTGs will be designed to operate on either 100 percent digas or a blend of digas and up to 40% natural gas.

The CTGs will have emission controls, including water injection to control nitrogen oxides (NO_x) and an oxidation catalyst to control CO and VOC emissions. NO_x emissions will not exceed 25 ppmvd at 15% O_2. CO emissions will not exceed 60 ppmvd at 15% O_2 (Table 1-3). Each combustion turbine will be coupled to an electric generator and, at full load, will produce approximately 9,900 kW (gross) of electricity. Exhaust gas from the combustion turbine will be routed through the oxidation catalyst to HRSG through insulated ductwork.

Table 1-3. Estimated Emission Concentrations per CTG

Pollutant	Uncontrolled Concentrations (ppmv at 15% O_2)	Controlled Concentrations (ppmv at 15% O_2)
NO_x	70	25
CO	130	60
VOC	100	25
PM_{10}	0.012 lbs/MMBtu	0.012 lbs/MMBtu
SO_x	20	20

Heat Recovery Steam Generators

The HRSG System provides for the transfer of heat from the combustion turbine exhaust at two pressures: high-pressure (HP) and low-pressure (LP). The HP steam will be directed to one STG while the LP steam will be sent to the HTP as process steam for the anaerobic digesters.

Oxidation Catalyst

The oxidation catalyst (OC) is a post-combustion air pollution control method designed to reduce CO and VOC emissions. The exhaust from each HRSG will be routed to its own oxidation catalyst unit prior to being introduced to the SCR. Typically, the OC catalyst is a platinum-based metal that induces the conversion of CO to CO_2 and VOC hydrocarbons to CO_2 and water.

Selective Catalytic Reduction (SCR)

The SCR is a post-combustion air pollution control device designed to reduce NO_x emissions. The exhaust from each oxidation catalyst will be routed to its own SCR system prior to being exhausted through the stack shared by all through CTG units. Reduction of NO_x emissions will be achieved by injecting urea or ammonia into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, urea, and O_2 react on the catalyst surface to form nitrogen and water.

Steam Turbine Generators

Each of the three HRSG will produce HP steam that will be sent to one shared STG train. When the CTGs are operating at or near full load, a portion of the steam will be extracted from between the non-condensing and condensing STGs after expanding through most of the turbine stages. However, the design extraction pressure is greater than the required process steam pressure. As a result, before the extracted steam can be sent to the digesters, the pressure must be reduced. At low CTG loads, the steam will be extracted from the LP section of the HRSG. Steam exiting the steam turbine will be exhausted to the condenser.

Condensing and Condensate Systems

The exhaust steam from the last stage of each steam turbine will be directed into its dedicated condenser shell, consisting of condensers, pumps and a deaerator. Makeup water will be supplied to the system because of process steam usage, cycle blowdown, and miscellaneous steam losses. Condenser makeup water will be supplied through the Cycle Makeup, Treatment, and Storage System. The condenser will be a surface type condenser, with dual-pass flow of secondary effluent water from the HTP acting as the cooling water. As the secondary effluent water passes through the tube side of the condenser, it will absorb heat from the steam, condensing it to a hot well. The secondary effluent will then be discharged to the existing secondary effluent discharge to the outfall. There will be provisions in the steam and condenser systems to bypass steam from the HRSGs directly to the condenser during steam turbine startup and during a steam turbine trip.

Process Steam

The digesters will utilize the saturated process steam from the HRSGs and via extraction steam from between the STGs. The STG steam will flow through a pressure-reduction valve, and possibly a desuperheater, where it will combine with steam from the LP superheater section of the HRSGs. The LP HRSG steam will pass through a spray desuperheater before combining with the extraction steam. The steam will be cooled to saturation temperature by the combined desuperheating before it is piped to the digesters.

Emergency Black Start Diesel Engine Generator

The process may likely include an 800 kW emergency diesel engine generator for black start capabilities in the event the normal sources of auxiliary power (i.e., two power restart generators and an emergency generator) are not available to start the first CTG. In addition, the generator may be used to provide power to maintain the plant in a safe shutdown condition when electricity is lost. If utilized in the Project, the engine will operate only for short test periods during normal plant operations. Otherwise, the engine will operate only when power blocks are down and auxiliary power is not available. The possible generator will be sized to start the largest motor across the line with a maximum of 20 percent voltage drop and will be connected directly to the 4.16 kV auxiliary system bus. The diesel engine will be started by DC battery or compressed air. If installed, the engine will be fueled by ultralow sulfur fuel oil (ULSFO) and will require the installation of a 2,000 gallon fuel tank with the capacity to provide approximately 6 hours of full load operation.

In normal operations, the proposed emergency diesel engine generator will be used less than 50 hours per year of operation, including at least 1 hour of testing every month. The engine will also be equipped with an elapsed operating time meter. The ULSFO will be stored in a 2,000 gallon double wall, closed-top, diked, generator base tank located on the generator skid.

Oil/Water Separator

Washdowns will result in wastewater mixed with oil. Prior to discharge of the wastewater, the oil will be separated using an oil/water separator. The only potential oil contaminant expected is the lubricating oil used in the CTGs and the ULSFO used in the emergency black start diesel engine generator. If utilized for the Project, each oil/water separator will have a capacity of 2,500 gallons.

Preliminary Construction Schedule and Scenario

The Preliminary Construction schedule is shown in Table 1-4.

Table 1-4. Preliminary Construction Schedule

Phase	Dates
Design Demolition	3/1/2012 to 10/7/2012
Demolition	10/10/2012 to 4/10/2013
Design Construction	1/16/2012 to 1/21/2013
Construction	4/20/2013 to 10/11/2014

Project Operation

Less than 10 additional employees will be required on-site to operate the new equipment as a result of implementing the proposed Project. This will result in up to three additional commuter trips per day during full operation of the Project. Additional traffic will be generated during the construction phase; however, this will be short term and is expected to be small.

Alternatives

Pursuant to CEQA Guidelines §15126.6, the EIR to be prepared for this Project will identify and compare the relative merits of a range of reasonable alternatives for the proposed Project. The Project alternatives will consider other possible means of feasibly attaining the objectives of the proposed Project that would avoid or substantially lessen significant effects of the proposed Project. The alternatives will be developed by varying basic components of the proposed Project. The "No Project" alternative will also be evaluated. Alternatives must include realistic measures for attaining the basic objectives of the proposed Project and provide a means for evaluating the comparative merits of each alternative.

The City issued a Request for Proposals (RFP) on January 14, 2011, to solicit potential design, construction, operations, and financing options for the beneficial use of HTP's renewable digester gas once the agreement to supply digester gas to SGS ceases. (The RFP and related information are available online.[1]) The proposals may possess differing combinations of air emissions, costs, and other factors. All such proposals may employ various types of equipment to accomplish similar goals and functions. Based on the designs proposed via the RFP process, the City will identify and analyze one or more project alternatives in the EIR. The specific equipment for project alternatives has yet to be determined and will be discussed in more detail in the EIR.

Any proposed project must go through CEQA review and meet applicable regulatory permitting and approval requirements; in particular, all combustion and air pollution control equipment must meet the permitting requirements of the SCAQMD. Potential Project alternatives may also utilize all of HTP's digester gas on-site by combustion to generate electricity and steam to satisfy HTP's needs. Air emissions of such on-site combustion of digas would be strictly regulated by the SCAQMD and, for purposes of this IS, are estimated at maximum permittable levels, although the actual constructed project would likely emit much lower levels of air emissions.

The "Project," as discussed above and analyzed in this IS, is expected to have the greatest potential impacts compared to other potential project proposal alternatives anticipated through the RFP process. However, if one of the proposed alternatives has a potentially significant impact in an area that the proposed Project does not, that environmental impact area will be analyzed and discussed in the Draft EIR for all alternatives.

In the EIR, the City will analyze the No Project Alternative. This alternative provides for no modification to the HTP Facility. Under this alternative, existing permitted boilers at HTP (which are currently only used if steam is not available from SGS) will be used to provide steam to the digesters. The remaining digester gas will be flared on-site through existing permitted HTP flares. Since that digester gas will be flared, it will not produce non-fossil fuel electrical energy for HTP; there will be increased costs since electricity would have to be purchased for HTP's energy demands and no environmental benefit will be realized from using a renewable energy source.

Project Actions and Approvals

The analysis in this document assumes that, unless otherwise stated, the Project would be designed, constructed and operated following all applicable laws, regulations, ordinances and formally adopted City standards (e.g., *Los Angeles Municipal Code* and Bureau of Engineering *Standard Plans*). The proposed

[1] http://www.labavn.org/index.cfm?fuseaction=contract.opportunity_view&recordid=10899&CFID=3661&CFTOKEN=31419492

Project and environmental documentation, including this IS, would require approval by the following City of Los Angeles decision-making bodies: Board of Public Works and the City Council. Additional anticipated approvals or permits for the proposed Project would be obtained as required and/or needed.

III. EXISTING ENVIRONMENT

The HTP is located on a 144-acre site adjacent to the Pacific Ocean. The facility is a full-secondary, high-purity-oxygen, activated sludge treatment plant with unchlorinated ocean discharge. Biosolids removed during treatment of the wastewater are treated by anaerobic digestion and are then dewatered and trucked offsite for use through a diversified management plan utilizing 100 percent beneficial reuse. The HTP provides preliminary, primary, secondary, and solids handling facilities. The basic unit processes include the following:

- Preliminary Treatment: Flow metering, screening, grit removal.
- Primary Treatment: Intermediate pumping station, oxygen reactors, oxygen generation and storage, final sedimentation, return activated sludge (RAS), and waste activated sludge (WAS) piping, and WAS thickening.
- Effluent Discharge: Effluent pumping plant, one-mile emergency outfall, five-mile outfall, emergency storage facility and by-pass channels for primary clarifiers to effluent discharge system.
- Solids Handling and Treatment: WAS thickening, anaerobic digesters, sludge screening, sludge dewatering, dewatered sludge storage and truck loading facility, and digester gas handling.

Primary sludge and thickened WAS are pumped to the anaerobic digesters for stabilization and solids reduction. There are 18 modified egg-shaped anaerobic digesters with a 2.5 MG capacity each. The City converted these digesters from mesophilic to thermophilic operation at about 128°F with direct steam injection. As part of this conversion, heat tracing was added to all the conveyance piping and storage silos to meet fecal coliform limits. This conversion now produces a Class A biosolids. There are also 18 conventional cylindrical-shaped digesters, which are currently removed from service. However, City staff is investigating possible uses of Battery C facilities to help supplement the capacity of the modified egg-shaped digesters.

In thermophilic anaerobic digestion, approximately 55 to 60 percent of the volatile solids contained in the sludge are destroyed. Under anaerobic conditions, complex organic compounds are consumed by bacteria, and broken down to CO_2, methane (CH_4), and water. Heat is added to reduce the time required to complete this process and help stimulate CH_4 production by the bacteria, which work best at 95 to 135°F. Heat for the process is provided by direct injection of steam.

The 18 modified egg-shaped digesters are grouped into three additional operational batteries. Each battery consists of six 2.5 MG modified egg-shaped digesters, and is designed as two-stage digesters. Two modules (12 tanks) were constructed in the northeast corner of the area designated as Batteries D1 and D2. A third, six-tank module was built in the Battery E area located just north of primary clarifier Battery C. There are also two blend tanks located in Battery E. They are of the same shape and size as the 18 modified egg-shaped digesters. The biogas production from anaerobic digestion is currently exported to the City's Scattergood Steam Generating Plant for energy recovery. A new pipeline was installed to deliver steam from the Scattergood Plant to the HTP for heating the digesters.

IV. ENVIRONMENTAL EFFECTS/INITIAL STUDY CHECKLIST

This section documents the screening process used to identify and focus upon environmental impacts that could result from the proposed Project. The IS Checklist below follows closely the form prepared by the Governor's Office of Planning and Research and was used in conjunction with the City's *CEQA Thresholds Guide* and other sources to screen and focus upon potential environmental impacts resulting from this Project. In addition, the amendments proposed in April 2009 to OPR's CEQA Guidelines, as they apply to the IS Checklist, have been inserted into this document. Impacts are separated into the following categories:

- No Impact. This category applies when a project would not create an impact in the specific environmental issue area. A "No Impact" finding does not require an explanation when the finding is adequately supported by the cited information sources (e.g., exposure to a tsunami is clearly not a risk for projects not near the coast). A finding of "No Impact" is explained where the finding is based on project-specific factors, as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- Less Than Significant Impact. This category is identified when the project would result in impacts below the threshold of significance, and would therefore be less than significant impacts.
- Potentially Significant Unless Mitigation Incorporated. This category is identified when the project would have a substantial adverse impact on the environment but could be reduced to a less than significant level with incorporation of mitigation measure(s).
- Potentially Significant Impact. This category is applicable if there is substantial evidence that a significant adverse effect might occur, and no feasible mitigation measures are foreseen to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

Sources of information that adequately support these findings are referenced following each question. All sources so referenced are available for review at the offices of the Bureau of Sanitation, 12000 Vista del Mar, Playa del Rey, CA 90293. Please call James Doty at (213) 485-5759 or email at jim.doty@lacity.org for further details.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
1 AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections A.1 and A.2)

Comment: A scenic vista generally provides focal views of objects, settings, or features of visual interest; or panoramic views of large geographic areas of scenic quality, primarily from a given vantage point. A significant impact may occur if the proposed Project introduced incompatible visual elements within a field of view containing a scenic vista or substantially altered a view of a scenic vista.

The HTP DGUP is located at 12000 Vista Del Mar, at the intersection of Imperial Highway and Vista Del Mar. The site is approximately 500 feet from the ocean and is located on a low bluff that rises from west to east approximately 40 to 100 feet above mean sea level (MSL). The site is buffered from the residential community of El Segundo to the east by a north/south trending man-made embankment that is approximately 1,000 feet wide. This embankment rises abruptly from approximately +32 MSL at the eastern property boundary to +100 MSL along the ridge to the east of the plant. A few City of El Segundo residences have views of the site from the northeast, southeast, and along an east central view line through a notch in the previously mentioned ridge. Currently, there is an exhaust stack that is approximately 125 feet high.

None of the proposed equipment described in the Project Description will exceed the height of the current stack and will not impede views of the nearby residents. The equipment will be installed at the facility as indicated on Figure 1-4 so that the new equipment will be located in the existing footprint of the facility, much of it within the existing Energy Recovery Building (ERB), with no scenic resources disturbed. No further analysis of this issue is required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

Reference: *California Scenic Highway Mapping System* and *L.A. CEQA Thresholds Guide* (Sections A.1 and A.2)

Comment: A significant impact may occur where scenic resources within a state scenic highway would be damaged or removed as a result of the proposed Project.

There are no scenic highways in the vicinity of the HTP facility. No further analysis of this issue is required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections A.1 and A.2)

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Comment: A significant impact may occur if the proposed Project introduced incompatible visual elements to the Project site or visual elements that would be incompatible with the character of the area surrounding the Project site.

The proposed Project involves the modification of the facility to add several pieces of equipment to the existing site. None of the proposed equipment described in the Project Description will exceed the height of the current stack. The equipment will be installed at the facility as indicated on Figure 1-4, with the majority of the equipment located inside an existing building. The new equipment will be located in the existing footprint of the facility, and the existing visual character or quality will not be degraded. No further analysis of this issue is required.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section A.4)

Comment: A significant impact would occur if the proposed Project caused a substantial increase in ambient illumination levels beyond the property line or caused new lighting to spill-over onto light-sensitive land uses such as residential, some commercial and institutional uses that require minimum illumination for proper function, and natural areas.

Construction activities are expected to occur during daylight hours and will not require lighting at night. Additional lighting will be required with the equipment being installed. This lighting is necessary for the operation of the equipment and for the safety of the employee. All of the lighting will be located on the new equipment, which will be located inside an existing building; the lighting will be directed at the equipment as opposed to off-site. There is no overall increase in outside lighting or glare associated with the HTP DGUP, and therefore there are no impacts associated with external lighting expected from the HTP DGUP. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

2 AGRICULTURE and FORESTRY RESOURCES

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Important (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and Zone Information & Map Access System (ZIMAS)

Comment: A significant impact may occur if the proposed Project were to result in the conversion of state-designated agricultural land from agricultural use to a non-agricultural use.

No prime or unique farmland or farmland of statewide importance exists within the City of Los Angeles. The Project site is not located on or near any property zoned or otherwise intended for agricultural uses. Therefore, the proposed Project would result in no impacts related to the conversion of agricultural lands. No further analysis of this issue is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and ZIMAS

Comment: A significant impact may occur if the proposed Project were to result in the conversion of land zoned for agricultural use, or indicated under a Williamson Act contract, from agricultural use to a non-agricultural use.

No land on or near the Project site is zoned for or contains agricultural uses. The City of Los Angeles does not participate in the Williamson Act. Therefore, there are no Williamson Act properties in the City of Los Angeles. The proposed Project would result in no impacts related to the conversion of agricultural lands. No further analysis of this issue is required.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and ZIMAS

Comment: A significant impact may occur if the Project results in a conflict with existing zoning, or causes rezoning of forest land or timberland.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

No land on or near the Project site is zoned for or contains forest or timberland uses. Therefore, the proposed Project would result in no impacts related to conflicts with forest land or timberland zoning. No further analysis of this issue is required.

d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and ZIMAS

Comment: A significant impact may occur if a project results in the conversion of forest land to another non-forest land use. No land on or near the Project site contains or is zoned for forest land uses. As such, the proposed Project would not convert forest land to a non-forest land use. The proposed Project would result in no impacts related to the conversion of forest land. No further analysis of this issue is required.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forest land to non-forest use?	☐	☐	☐	☒

Reference: California *City of Los Angeles General Plan Conservation Element* and ZIMAS

Comment: A significant impact may occur if a project results in the conversion of farmland to another non-agricultural use or forest land to a non-forest land use. See Comments for 2(a) and 2(d) above. As described, no impacts to farm land or forest uses would occur. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

3 AIR

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections B1 and B2) and *City of Los Angeles General Plan Air Quality Element*

Comment: The Project site is located within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the air pollution control district responsible for the Air Quality Management Plan (AQMP), which is a comprehensive air pollution control program for attaining and/or making progress towards the state and federal ambient air quality standards. As part of its General Plan, the City adopted an Air Quality Element that contains policies and goals for making progress towards and/or attaining state and federal air quality standards, while simultaneously facilitating local economic growth. It includes implementation strategies for local programs contained in the AQMP. A significant impact would occur if the Project were not consistent with the AQMP or the City's General Plan.

The DGUP would serve existing and intended land uses and would not affect regional employment or population growth. The main objectives of the proposed Project are to modify the facility to beneficially use digas on-site. Existing uses on and surrounding the Project site would not be changed. The AQMP includes growth projections, etc. of city services. The Project will not conflict with the AQMP or with the City's General Plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections B1 and B2) and *SCAQMD Thresholds*

Comment: A significant impact may occur if the proposed Project violated any SCAQMD air quality standard. The SCAQMD has set thresholds of significance for reactive organic gases (ROG), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter (PM_{10}) emissions resulting from construction and operation in the South Coast Air Basin. Significance thresholds approved by the SCAQMD will be used to determine whether the DGUP results in significant adverse impacts related to air emissions (see Table 3-1). The construction and operation of the proposed Project may potentially exceed SCAQMD significance thresholds. This issue will require further analysis.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Table 3-1. SCAQMD Significance Thresholds

Mass Daily Thresholds		
Pollutant	Construction	Operation
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TAC and Odor Thresholds		
Toxic Air Contaminants (TACs)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Cancer burden > 0.5 excess cancer cases (in areas > 1 in 1 million) Hazard Index $\geq$ 1.0 (project increment)	
Odor	Project creates a minimal odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants		
NO_2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state)	
PM_{10} 24-hour annual geometric mean	10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
$PM_{2.5}$ (24-hour average)	10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation)	
Sulfate (24-hour average)	1 $\mu g/m^3$	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following ambient standards: 20 ppm (state) 9.0 ppm (state/federal)	

PM_{10} = particulate matter less than 10 microns in size, $\mu g/m^3$ = microgram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material.
NO_2 = Nitrogen Oxide, CO = Carbon Monoxide, VOC = Volatile Organic Compounds, SO_x = Sulfur Oxide.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections B1 and B2) and *2010 State Area Designation*

Maps from http://www.arb.ca.gov/desig/adm/adm.htm#state

Comment: A significant impact would occur if the proposed Project resulted in a cumulatively considerable net increase of a criteria pollutant for which the South Coast Air Basin exceeds federal and state ambient air quality standards and has been designated as an area of non-attainment by the U.S. Environmental Protection Agency (USEPA) and/or California Air Resources Board. The South Coast Air Basin is a non-attainment area for ozone and particulate matter (PM_{10}, $PM_{2.5}$).

As indicated in item 3(b) above, construction and operation emissions of the proposed Project may potentially exceed the SCAQMD's thresholds of significance for criteria pollutants. This issue will require further analysis.

d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections B1, B2, and B3)

Comment: A significant impact would occur if construction or operation of the proposed Project generated pollutant concentrations to a degree that would significantly affect sensitive receptors.

The SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. The closest sensitive receptors to the DGUP are residences and schools in El Segundo. Air quality modeling and related health risk analyses prepared in support of a related SCAQMD permit application shows that the proposed Project itself (even without subtracting the Project baseline) does not exceed SCAQMD ambient air quality or health risk thresholds (i.e., cancer risk threshold, chronic or acute hazard indices). A full health risk assessment will also be prepared and discussed in the DEIR to determine the potential significance of exposure to toxic air contaminants (TACs), including diesel particulate matter (DPM), as well as to assess local impacts to ambient air quality at nearby sensitive receptors. Although this modeling indicates that the proposed Project will not result in potentially significant impacts related to the exposure of sensitive receptors to substantial pollutant concentrations, this issue will be analyzed in the DEIR.

e) Create objectionable odors affecting a substantial number of people?	☒	☐	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections B1 and B2)

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Comment: A significant impact would occur if the Project created objectionable odors during construction or operation that would affect a substantial number of people.

During construction, sources of odor are diesel emissions from construction equipment. However, these odors would be temporary and localized. Nonetheless, applicable best management practices such as those in SCAQMD Rule 431 (Diesel Equipment) would, in addition to minimizing air quality impacts, also help minimize potential construction odors. During operation, sources of odor are combustion in the turbines and engines and certain chemicals used in control equipment. This issue requires further analysis.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

4 BIOLOGICAL RESOURCES

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

Reference: City of Los Angeles General Plan, City of Los Angeles General Plan Conservation Element; and *L.A. CEQA Thresholds Guide* (Section C)

Comment: A significant impact may occur if the proposed Project would remove or modify habitat for any species identified or designated as a candidate, sensitive, or special status species in local or regional plans, policies, or regulation, or by the state or federal regulatory agencies cited.

The HTP has already been developed and landscaped. The HTP DGUP is located entirely within the existing boundaries of the HTP and consists solely of on-site modifications. No candidate, sensitive, or special status species identified in local plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or by the U.S. Fish and Wildlife Service (USFWS) are expected to be found within the boundaries of the HTP facility, as the HTP DGUP area supports no habitat for such species. Because all excavation and construction would occur within the existing confines of the HTP site, no disturbance of, or substantial adverse effect on, any habitat for any candidate, sensitive, or special status species will occur. No further analysis of this issue is required.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and *L.A. CEQA Thresholds Guide* (Section C)

Comment: A significant impact may occur if riparian habitat or any other sensitive natural community were to be adversely modified.

The HTP has already been developed and landscaped. It does not contain any significant or naturally occurring biological resources or riparian habitats. The HTP DGUP is located entirely within the existing boundaries of the HTP and consists solely of on-site modification. Because all excavation and construction would occur within the existing confines of the HTP site, no disturbance of, or substantial adverse effect on, riparian habitat would result from implementation of the HTP DGUP. See also comment for 4(a). No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Conservation Element* and *L.A. CEQA Thresholds Guide* (Section C)

Comment: A significant impact may occur if federally protected wetlands, as defined by Section 404 of the Clean Water Act, would be modified or removed.

The HTP has already been developed and landscaped. It does not contain any federally protected wetlands within the boundaries of the facility. The HTP DGUP is located entirely within the existing boundaries of the HTP and consists solely of on-site modification. Because all excavation and construction would occur within the existing confines of the HTP site, no disturbance of, or substantial adverse effect on, wetlands would result from implementation of the HTP DGUP. See also comment for 4(a). No further analysis of this issue is required.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section C)

Comment: A significant impact may occur if the proposed Project interfered or removed access to a migratory wildlife corridor or impeded the use of native wildlife nursery sites.

The HTP DGUP is located entirely within the existing boundaries of the HTP and consists solely of on-site modification. Because all excavation and construction would occur within the existing confines of the HTP site, no disturbance of, or substantial adverse effect on, the movement of any wildlife species would occur. No further analysis of this issue is required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section C)

Comment: A significant impact may occur if the proposed Project would cause an impact that was inconsistent with local regulations pertaining to biological resources.

The HTP has already been developed and landscaped. The HTP DGUP will not conflict with any local policies or ordinances protecting biological resources. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The HTP has already been developed and landscaped. The HTP DGUP will not conflict with any local policies or ordinances protecting biological resources. Thus, current and future operations at the HTP site will comply with all local, regional, and state conservation plans. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

5 CULTURAL RESOURCES

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section D.3) and ZIMAS

Comment: A significant impact may result if the proposed Project caused a substantial adverse change to the significance of a historical resource.

The HTP has been operating since 1894 and has undergone many expansions and improvements. The majority of the site has been previously cleared, excavated, and/or developed. The HTP DGUP will involve minor ground-disturbing activities. However, none of these activities are expected to result in an adverse impact to any equipment or structures over 50 years of age that may be culturally significant because no cultural resources have been previously identified at the HTP site, none are expected to be found during construction of the HTP DGUP. No further analysis of this issue is required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section D.3)

Comment: A significant impact may occur if the proposed Project were to cause a substantial adverse change in the significance of an archaeological resource which falls under the CEQA Guidelines section cited above.

The HTP has been operating since 1894 and has undergone many expansions and improvements. The majority of the site has been previously cleared, excavated, and/or developed. An archaeological records search was undertaken by the UCLA Archaeological Survey for an area of one-half mile radius outside of the HTP site.[2] This search revealed no known sites, nor have any paleontological resources been identified, within one-half mile of the HTP facility. Therefore, there are no significant impacts are expected from the HTP DGUP. No further analysis of this issue is required.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section D.1)

Comment: A significant impact may occur if grading or excavation activities associated with the proposed Project would disturb unique paleontological resources or unique geologic features.

The HTP has been operating since 1894 and has undergone many expansions and improvements. The majority of the site has been previously cleared, excavated, and/or developed. An archaeological records

[2] Hyperion Solids Handling Facilities Improvement Project. Final Environmental Impact Report. 1993. SCH No. 92041019.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

search was undertaken by the UCLA Archaeological Survey for an area of one-half mile radius outside of the HTP site.[3] This search revealed no known sites, nor have any paleontological resources been identified, within one-half mile of the HTP facility. No further analysis of this issue is required.

d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Reference: *Standard Specification for Public Works Construction* and *L.A. CEQA Thresholds Guide* (Section D.2)

Comment: A significant impact may occur if grading or excavation activities associated with the proposed Project would disturb interred human remains.

The HTP has been operating since 1894 and has undergone many expansions and improvements. The majority of the site has been previously cleared, excavated, and/or developed. No known human remains or burial sites have been identified at the HTP facility during previous construction activities, and none are expected to be found during construction of the HTP DGUP. No further analysis of this issue is required.

[3] Ibid.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

6 GEOLOGY/SOILS

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
b) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐

Reference: *California Department of Conservation Publication 42; L.A. CEQA Thresholds Guide* (Section E.1) and *City of Los Angeles General Plan Safety Element*

Comment: A significant impact may occur if the proposed Project were located within a state-designated Alquist-Priolo Zone or other designated fault zone and appropriate building practices were not followed.

Seismic events are a common occurrence in Southern California, with northwesterly trending major earthquake faults dominating in the region. The San Andreas fault is the primary fault in the area, is located north of HTP, and is thought to have a maximum credible event potential equivalent to a magnitude of 8.5 on the Richeter scale. The Newport-Inglewood fault system is also in the area and is located six miles east of HTP. Figure 6-1 shows the different fault systems in the region in relation to the HTP DGUP.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

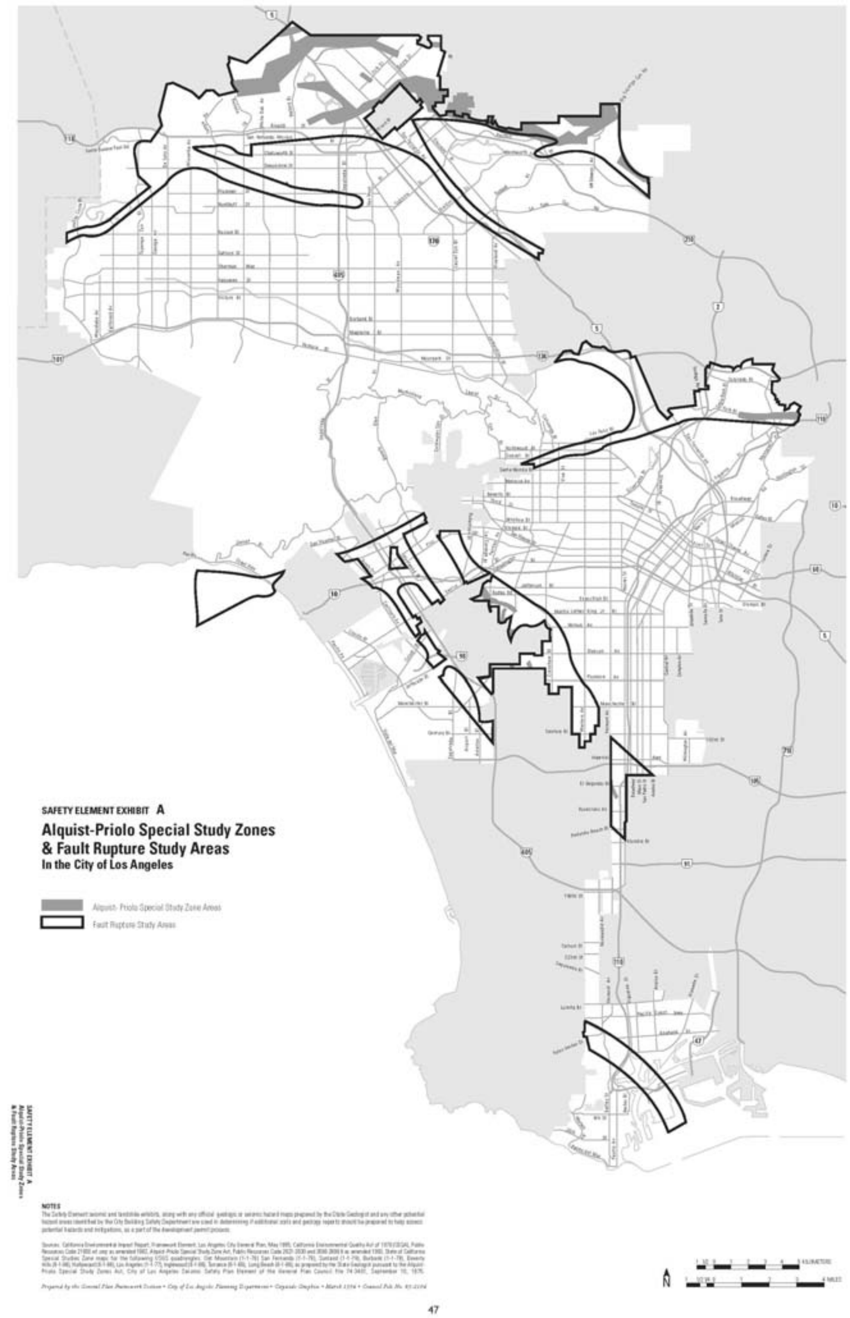

Figure 6-1. Alquist-Priolo Map of Fault Systems in Vicinity of HTP Facility

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

The adverse effects associated with strong seismic events depend upon several factors including the following: intensity of the event, frequency of vibration, distance from the epicenter, and nature of earth materials through which the vibrations pass. The HTP facility has experienced several earthquakes since it began operating in 1894. The only earthquake resulting in damage to the facility (i.e., the San Fernando earthquake in 1971) resulted in only minor cracks in several facility structures. A maximum credible earthquake on the Newport-Inglewood fault system (i.e., magnitude 7.0) would subject the facility to greater forces than it has been subjected to in the past. No active faults which might expose structures to fault rupture or abnormally high ground accelerations during an earthquake are known to underlie the HTP site.

The HTP DGUP is located in a seismically active region of southern California. As such, it is conceivable that a strong event could occur during construction or operation of the HTP DGUP. As with all properties in the seismically active southern California region, the DGUP area is susceptible to ground shaking, ground failure, and landslides produced by local faults during seismic events. The HTP DGUP involves the installation of cogeneration equipment to utilize the digas that has been, and will continue to be, produced at the site. The new equipment will not cause or contribute to an increase in the exposure of people or structures to adverse effects involving earthquakes or other potential seismic hazards. While it is likely that HTP will experience seismic events by future earthquakes produced in southern California, construction of the DGUP will be conducted in accordance with all applicable requirements for seismic safety in the Uniform Building Code (UBC); thus, the increased risks to employees and nearby residents and workers due to the DGUP would be minimal in the case of a seismic event. Overall, impacts due to on-site rupture of a known earthquake fault would be less than significant. No further analysis of this issue is required.

c) Strong seismic ground shaking?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section E.1)

Comment: A significant impact may occur if the proposed Project design did not comply with building code requirements intended to protect people from hazards associated with strong seismic ground shaking.

The HTP DGUP will be constructed within existing buildings that presently comply with building code requirements and all DGUP equipment installation will conform to building code requirements. Therefore, the proposed Project will not have any potentially significant impact on ground shaking impacts. No further analysis is required.

d) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Reference: *California Department of Conservation Seismic Hazards Map – Venice Quadrangle; L.A. CEQA Thresholds Guide* (Section E.1); and *City of Los Angeles General Plan Safety Element*

Comment: A significant impact may occur if the proposed Project would be located in an area identified as having a high risk of liquefaction and appropriate design measures required within such designated areas were not incorporated into the Project.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Although the entire Project site is located in an area mapped as potentially liquefiable, the proposed Project will be constructed within an existing building that meets required building codes appropriate for the area. Therefore, no potentially significant impact is expected from implementation of the proposed Project. No further analysis of this issue is required.

e) Landslides?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan* (Landslide Inventory and Hillside Areas in the City of Los Angeles Map) and *L.A. CEQA Thresholds Guide* (Section E.1)

Comment: A significant impact may occur if the proposed Project would be located in an area identified as having a high risk of landslides.

The HTP is located on the western edge of the Los Angeles Coastal Plain, approximately 500 feet from the ocean. The site is located on a low bluff that rises from west to east approximately 40 to 100 feet above MSL. The HTP is located on a section of a dune system that is comprised of a belt of recent and older dune sand deposits paralleling the coast from Ballona Creek to the Palos Verdes Hills. This belt extends from the coast to approximately four miles inland. The recent dune sand deposits immediately adjacent to the coast are approximately one-half mile wide with crests ranging from 85 to 185 feet above sea level, while the older dune sand deposits comprise the remainder of the belt. The older dune sand deposits are formed almost entirely of fine- to medium-grained sands and silty sands which are dense to very dense and slightly cemented. Underlying these deposits is the Lakewood formation, which is subsequently underlain by Tertiary sediments. The facility is situated on the older dune sand deposits of the El Segundo Sandhills, at the southwestern edge of the Hyperion oil field. The HTP DGUP is not located on any portion of the oil field.

No known landslide areas are identified on the Project site. Therefore, the proposed Project would result in less than significant impacts related to landslides. No further analysis of this issue is required.

As described in comment for 6 (a)(i), it is conceivable that a strong event could occur during construction or operation of the HTP DGUP. The DGUP area is susceptible to ground shaking, ground failure, and landslides produced by local faults during seismic events. While it is likely that HTP will experience seismic events by future earthquakes produced in southern California, construction of the DGUP and installation of DGUP equipment will be conducted in accordance with all applicable requirements for seismic safety in the UBC. Overall, risks from seismic ground shaking would be less than significant. No further analysis of this issue is required.

f) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Safety Element* and *L.A. CEQA Thresholds Guide* (Section E.2)

Comment: A significant impact may occur if the proposed Project were to expose large areas to the erosion effects of wind or water for a prolonged period of time.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

The majority of the HTP site has been previously cleared, excavated, and/or developed. The construction required to complete the DGUP will involve only minimal ground-disturbing activities, with approximately 2,500 cubic feet of soil disturbed. The disturbed land will be re-covered with new pavement or concrete slabs supporting installed equipment, as applicable. The excavated soil will be disposed of off-site through beneficial uses (e.g., placed on the vegetated hill near the HTP facility, used in the Blue Butterfly preserve). If it is used off-site, the excavated volume will require approximately 14 truck trips (assuming a haul truck capacity of 180 cubic feet, or 20 cubic yards) and the soil will be disposed of in an appropriate manner. Because the DGUP involves minimal disturbance, no significant impacts on topography and soils, and, hence, soil erosion, are expected. No further analysis of this issue is required.

g) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section C.1) and *City of Los Angeles General Plan* (Landslide Inventory and Hillside Areas in the City of Los Angeles Map)

Comment: A significant impact may occur if the proposed Project were built in an unstable area without proper site preparation or design features to provide adequate foundations for Project buildings, thus posing a hazard to life and property.

See comment to 6(a)(iv). While it is likely that HTP will experience seismic events by future earthquakes produced in southern California, construction and equipment installation as part of the DGUP will be conducted in accordance with all applicable requirements for seismic safety in the Uniform Building Code (UBC); thus, the increased risks to employees and nearby residents and workers due to the DGUP would be minimal in the case of a seismic event. Overall, impacts due to on-site rupture of a known earthquake fault, risks from seismic ground shaking, ground failure including potential liquefaction impacts, and landslides would be less than significant. No further analysis of this issue is required.

h) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒

Reference: Uniform Building Code

Comment: The HTP facility is not located on an expansive soil. No impact is expected.

i) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section C)

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Comment: A significant impact may occur if the proposed Project were built on soils that were incapable of adequately supporting the use of septic tanks or alternative wastewater disposal system, and such a system were proposed.

The HTP DGUP is located in a developed area of the HTP, which is served by an existing wastewater collection, conveyance, and treatment system operated by the City of Los Angeles. No septic tanks or alternative disposal systems are necessary, nor are they proposed. If required, portable toilets owned, operated, and serviced by a licensed sanitary vendor will be used to accommodate workers involved in construction activities. Since the DGUP does not include septic systems or alternative disposal systems, no impacts on soils from alternative wastewater disposal systems are expected and no further analysis is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

7 GREENHOUSE GAS EMISSIONS

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐

Reference: Office of Planning and Research

Comment: A significant impact may occur if the proposed Project would generate a substantial amount of greenhouse gas (GHG) emissions.

The DGUP will require off-road equipment during construction and from combustion equipment during operation. As such, the proposed Project would generate GHG emissions during both construction and operation. A detailed analysis is required to assess the proposed Project's contribution of GHG emissions during construction and operation. It should be noted that this is a renewable energy project, which could affect how GHGs are calculated and significance assessed. Although the DGUP may not have significant GHG impacts, further analysis of this issue is required.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Reference: Office of Planning and Research

Comment: A significant impact may occur if the proposed Project would conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions.

See comment for 7(a). The proposed Project's compliance with guidance set forth in the Office of Planning and Research, the California Air Pollution Control Officers Association, SCAQMD, and State Assembly Bill 32 will require further detailed analysis. Further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

8 HAZARDS & HAZARDOUS MATERIALS

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections F.1 & F.2)

Comment: Methane is defined as a hazardous material by the US Environmental Protection Agency (USEPA; 40 CFR 68.130). Currently, methane in the form of digas is being produced, used, and handled on-site, and transported off-site to the SGS. In addition, methane in the form of natural gas is being used and handled on-site. The amount of methane stored on-site exceeds the state and federal threshold quantities and is thus subject to the California Accidental Release Prevention (CalARP) Program and USEPA's Risk Management Program (RMP). As a result, the HTP facility has an existing RMP that includes accidental release prevention and emergency response policies.[4] This Plan incorporates digas safety systems such as fire protection systems, leak detection systems, pressure relief valves, pressure switches, manual shutoff valves on pipelines, flame arrestors, and flares for excess digas. The HTP also complies with the Hazardous Materials Business Plan reporting and renewal requirements per the Health and Safety Code. In addition, the HTP DGUP has an existing Emergency Action Plan covering digas. This plan contains procedures for informing local and public agencies that will respond to an accidental release. This plan also contains information on emergency health care.

Construction of the proposed Project would not require demolition of any buildings (including the ERB), but would require removal of previously decommissioned equipment. Within this equipment, unquantified amounts of ash and other process materials may be found. Prior to removal of the decommissioned equipment and construction of the proposed Project, the character and amounts of these residual materials will be determined, so that any hazardous materials can be collected and disposed of in accordance with applicable State, federal, and local regulations. Approved disposal practices will include, but not be limited to sampling and analyses, chain of custody, use of personal protection equipment, and transport.

During construction and operation of the proposed Project, the City and Contractor shall abide by all accepted use and disposal practices for all materials in accordance with established practices and adopted regulations.

Either urea or anhydrous ammonia will be used on-site to reduce NO_x emissions. Depending on the system chosen, the volume stored on-site would vary. Potential spills could exceed the EPA's reporting threshold under the Emergency Planning and Community Right-to-Know Act (EPCRA). However, the HTP facility will update all emergency plans as describe above. No significant impacts are expected; however, further analysis is required.

[4] CalARP Risk Management Plan. 1999. Prepared for Hyperion Treatment Plant, City of Los Angeles Bureau of Sanitation.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections F.1 & F.2)

Comment: See comment to 8(a). The HTP is consistent with the current Risk Management Plan and will continue to follow its requirements. The proposed Project may result in potentially significant impacts related to hazards and hazardous materials. Further analysis of this issue is required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections F.2)

Comment: A significant impact may occur if the proposed Project were located within one-quarter mile of an existing or proposed school site and were projected to release toxic emissions which pose a hazard beyond regulatory thresholds.

No existing or proposed schools are located within one-quarter mile of the HTP site so no impacts to a school within one-quarter mile are expected. No further analysis of this issue is required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections F.2)

Comment: The HTP facility is not included on a list of hazardous sites pursuant to Government Code §65962.5. No further analysis of this issue is required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan, L.A. CEQA Thresholds Guide* (Section F.1)

Comment: A significant impact may occur if the proposed Project site was located within a public airport land use plan area, or within two miles of a public airport, and would create a safety hazard.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Although not located near a private airstrip, the HTP DGUP is located less than two miles from Los Angeles International Airport (LAX). A Los Angeles County Airport Land Use Plan[5] (ALUP) was created by the Airport Land Use Commission (ALUC) with the purpose of coordinating the planning for the areas surrounding public use airports. The HTP DGUP, most of which will be housed in existing buildings, will not add new tall stacks or increase the height of the existing 125-foot stack. The HTP DGUP is consistent with the current operations at the HTP and with the ALUP, and no potentially significant safety hazards related to nearby airports are expected from the HTP DGUP. No further analysis of this issue is required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section F.1)

Comment: The Project site is not located within the vicinity of a private airstrip. Therefore, the proposed Project would result in no impacts related to private airstrip hazards. No further analysis of this issue is required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section F.1) and *City of Los Angeles General Plan Safety Element*

Comment: A significant impact may occur if the proposed Project were to substantially interfere with roadway operations used in conjunction with an emergency response plan or evacuation plan or would generate sufficient traffic to create traffic congestion that would interfere with the execution of such a plan.

The Emergency Action Plan was most recently reviewed in January 2010. Hyperion employees are trained on emergency procedures annually. The City of Los Angeles Fire Department is the emergency response agency with which the Emergency Action Plan is coordinated. There are several stations in the vicinity that will respond; the closest is the LAX Station #95 (10010 International Road), followed by the LAX Station #51 (10435 Sepulveda Blvd.). In addition, Station #80, which is typically reserved for use at LAX, and Station #5, which is a new station, are both available in case additional dispatches are required. Implementation of the HTP DGUP, which will occur only at the HTP and mostly within existing HTP buildings, will not impair or interfere with the implementation of any aspect of this plan and thus is not expected to result in a potentially significant adverse impact. No further analysis of this issue is required.

[5] Los Angeles County Airport Land Use Plan. 1991. Los Angeles County Airport Land Use Commission. Developed by the Department of Regional Planning. Available at: http://planning.lacounty.gov/assets/upl/data/pd_alup.pdf. Accessed 27 August 2010.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Safety Element*

Comment: A significant impact may occur if the proposed Project were located in a wildland area and poses a significant fire hazard, which could affect persons or structures in the area in the event of a fire.

No substantial or native vegetation exists within the area of the HTP DGUP, other than minimal landscaping. The HTP DGUP will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. In addition, no additional flammable materials that are not already used on-site will be used at the site for the operation of the HTP DGUP. Therefore, no significant increase in fire hazards is expected to be associated with the HTP DGUP. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

9 HYDROLOGY/WATER QUALITY

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section G.2)

Comment: A significant impact may occur if the proposed Project discharged water which did not meet the quality standards of agencies which regulate surface water quality and water discharge into storm water drainage systems. For example, if a project were not in compliance with all applicable regulations with regard to surface water quality as governed by the State Water Resources Control Board. These regulations include compliance with the Standard Urban Storm Water Mitigation Plan (SUSMP) requirements to reduce potential water quality impacts.

The HTP is located in the City of Los Angeles, which is part of the Los Angeles River Basin. The Los Angeles River Basin includes the coastal areas of Los Angeles County south of the divide of the San Gabriel Mountains and Santa Susana Mountains, plus a small part of the coastal portion of Ventural County south of the divide of the Santa Monica Mountains. This basin is drained by four major streams: the Los Angeles River, the Rio Hondo, Ballona Creek, and the San Gabriel River. Numerous tributaries discharge into these major drainage channels. In addition, the basin contains several other streams and drainages. The two streams closest to the DGUP are the Los Angeles River and Ballona Creek. Currently, site runoff is collected by an on-site drainage system and then treated prior to discharge to the Pacific Ocean.

The DGUP will not discharge additional water as a result of operation of the proposed Project, and no water quality standards of waste discharge requirements will be violated. No further analysis of this issue is needed.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Sections G.2 and G.3)

Comment: Groundwater is a major component of the water supply for many public water suppliers in the Los Angeles metropolitan area, and is also used by private industries, as well as a limited number of private agricultural and domestic users. A project would normally have a significant impact on groundwater supplies if it were to result in a demonstrable and sustained reduction of groundwater recharge capacity or change the potable water levels sufficiently that it would reduce the ability of a water utility to use the groundwater basin for public water supplies or storage of imported water, reduce the yields of adjacent wells or well fields, or adversely change the rate or direction of groundwater flow.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

The HTP DGUP will involve minor ground disturbing activities during construction. These activities do not involve any drilling or excavation deep enough to encounter groundwater. Also, no groundwater will be extracted as part of the construction activities. Water spraying will be used to control fugitive dust as needed during construction. This water requirement is short-term in nature and will not significantly impact the groundwater.

The HTP DGUP will require potable water during operation for water injection (NO_x control equipment) and make-up water for steam loop losses, but this is expected to be less than approximately 150 gallons per minute, which is negligible compared to the existing water supplies. This Project will also use secondary effluent as once-thru cooling water, using a renewable resource instead of potable water. No further analysis of this issue is required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections G.1 and G2)

Comment: A significant impact may occur if the proposed Project resulted in a substantial alteration of drainage patterns that resulted in a substantial increase in erosion or siltation during construction or operation of the Project.

The DGUP will be constructed within the existing footprint of the HTP, with most of the DGUP equipment installed within existing structures. The majority of the HTP is already developed and paved, and there will be no change due to operation of the DGUP. Any disturbed land will be repaved and returned to the condition before construction activities occurred. These minimal activities will not disrupt the existing drainage pattern at the site, cause substantial erosion or flooding at the site, or other potentially significant impacts. No further analysis of this issue is required.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section G.1)

Comment: A significant impact may occur if the proposed Project resulted in increased runoff volumes during construction or operation of the proposed Project that would result in flooding conditions affecting the Project site or nearby properties.

See Comment to 10(c). The proposed Project will not permanently disrupt the existing drainage pattern at the site or cause flooding on- or off-site. Outside construction activities will be short in duration and

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

limited in scope since most construction will occur inside existing structures. No further analysis of this issue is needed.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section G.2)

Comment: A significant impact may occur if the volume of runoff were to increase to a level which exceeded the capacity of the storm drain system serving a project site. A significant impact may also occur if the proposed Project would substantially increase the probability that polluted runoff would reach the storm drain system.

See response to 10 (c). The footprint of the existing HTP facility, including the area of paved surfaces, is not expected to change as a result of the DGUP. No additional runoff from the HTP is expected as a result of construction or operation of the Project. No further analysis of this issue is needed.

f) Otherwise substantially degrade water quality?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section G.3)

Comment: A significant impact may occur if a project included potential sources of water pollutants and potential to substantially degrade water quality.

The proposed Project is not expected to generate any water pollutants or contribute to additional runoff (see comment to 10(a) through(e)). No further analysis of this issue is needed.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

Reference: FEMA, Flood Insurance Rate Map No. 06037C1610F; *L.A. CEQA Thresholds Guide* (Sections G.1 to G.3); and ZIMAS

Comment: The Project site is located within a 100-year flood hazard area (see Figure 9-1). However, no housing is proposed as part of the DGUP. Therefore, the DGUP would result in no impacts on the placement of housing within a 100-year flood hazard area. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

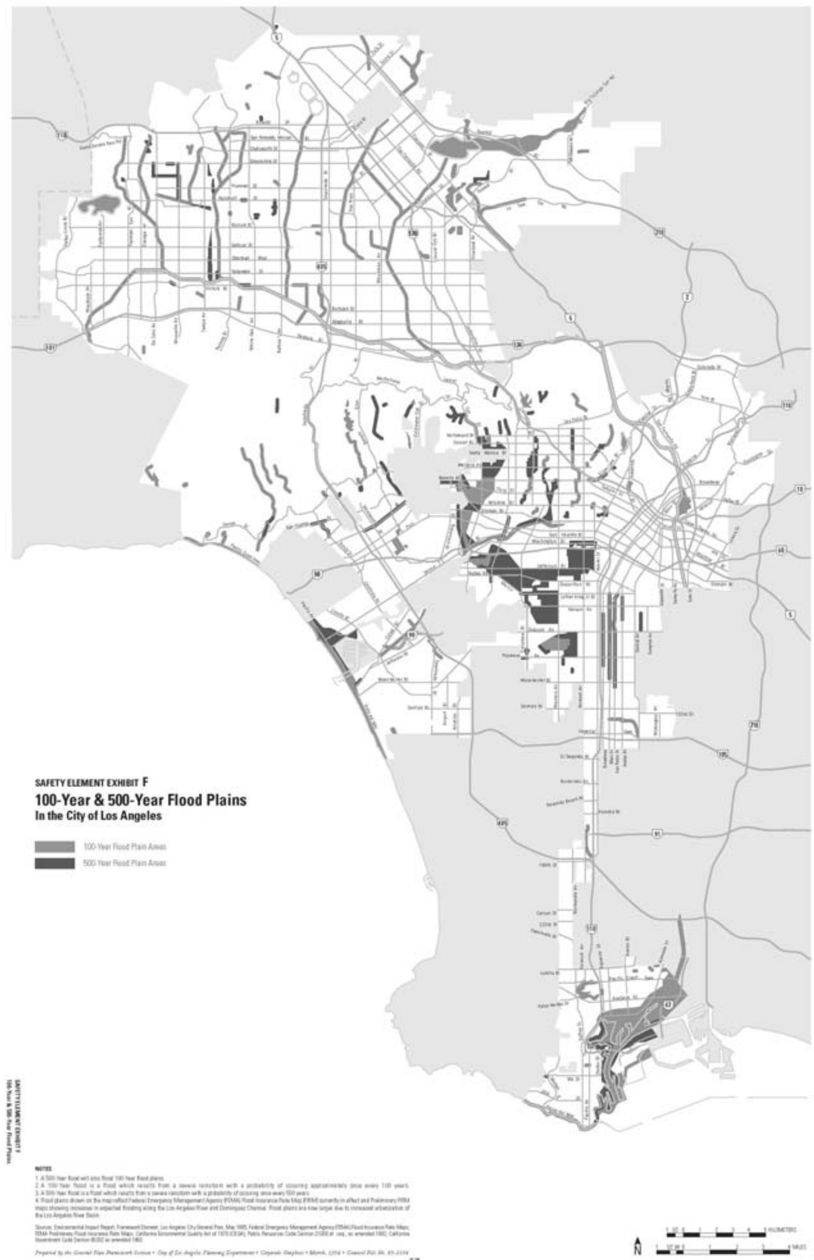

Figure 9-1. 100-Year and 500-Year Flood Plains in the Vicinity of the HTP Facility

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐

Reference: FEMA, Flood Insurance Rate Map No. 06037C1610F; *L.A. CEQA Thresholds Guide (*Sections G.1 & G.3*);* and ZIMAS

Comment: The Project site is located within a 100-year flood hazard area. The major equipment that will be added as part of the HTP DGUP will be located within the existing footprint of the HTP site and will be located within an existing building and among other equipment currently operating at the site. As a result, this new equipment will not impede or redirect any potential water flows occurring at the site in the event of a flood. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Safety Element* and *L.A. CEQA Thresholds Guide* (Sections E.1 & G.3)

Comment: A significant impact may occur if the proposed Project were located in an area where a dam or levee could fail, exposing people or structures to significant risk of loss, injury or death.

The HTP DGUP is located in a 100-year flood plain. The new equipment that will be added as part of the HTP DGUP will be located within the existing footprint of the HTP site and will be generally located within an existing building and among other equipment currently operating at the site. As a result, the new equipment will not impede or redirect any potential water flows occurring at the site in the event of a flood. No significant impacts are expected. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Safety Element* and *L.A. CEQA Thresholds Guide* (Section E.1)

Comment: A significant impact may occur if the proposed Project would cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury.

Seismic events that occur near coastal areas can generate seismic sea waves, i.e., tsunamis, which can inundate low-lying coastal areas. The HTP DGUP is located in an area potentially affected by tsunamis (see Figure 9-2). Although there is a risk of floods or tsunamis at the HTP because of the close proximity to the ocean, implementation of the HTP DGUP will not substantially increase the risk to people or structures to potential flooding or inundation by seiche, tsunami, or mudflow since major new DGUP equipment will be in existing structures. No further analysis of this issue is expected.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

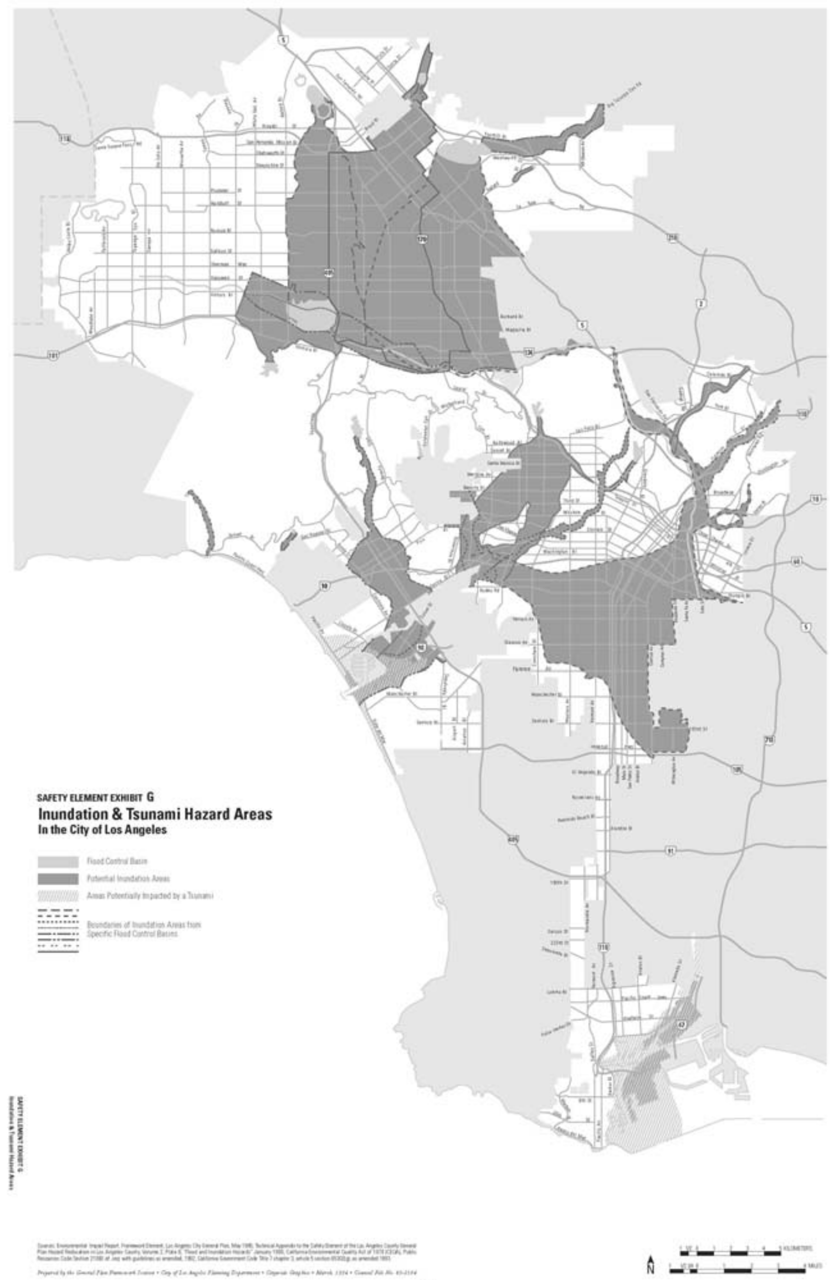

Figure 9-2. Inundation and Tsunami Hazard Areas in the Vicinity of the HTP Facility

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

10 LAND USE/PLANNING

a) Physically divide an established community?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan* and *L.A. CEQA Thresholds Guide* (Section H.2)

Comment: Determination of impact is made based on several factors, including whether the proposed Project is sufficiently large or otherwise configured in such a way as to create a physical barrier within an established community.

The modifications included in the HTP DGUP will occur entirely within the existing HTP facility and do not involve a change in the existing land or water use at the site. No established community will be physically divided as a result of the construction or operation or the HTP DGUP. No further analysis is required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan*; *L.A. CEQA Thresholds Guide* (Sections H.1 & H.2); and ZIMAS

Comment: A significant impact may occur if the proposed Project were inconsistent with the General Plan, or other applicable plan, or with the site's zoning if designated to avoid or mitigate a significant potential environmental impact.

The HTP DGUP site is located at the HTP, a site that has been previously developed and operating. The facility is located in an area zoned Public Facilities, PF-1. The closest community is the City of El Segundo, which is located to the east of the site.

The proposed modifications involved in DGUP are consistent with the wastewater processing activities of the HTP and will occur within the boundaries of the existing facility. Land use within the facility is designated as PF-1, which is public facilities usage. As a result, the proposed activities are permitted in the zone and the DGUP is consistent with the land use designations. No further analysis is required.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan* and *L.A. CEQA Thresholds Guide* (Sections H.1 & H.2)

Comment: A significant impact may occur if the proposed Project were located within an area governed by a habitat conservation plan or natural community conservation plan and would conflict with such plan.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

No habitat conservation plan or natural community conservation plan exists for the Project site. Therefore, the proposed Project would result in no impacts related to conflicts with habitat conservation or natural community conservation plans. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

11 MINERAL RESOURCES

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

Reference: *US Geological Survey Mineral Resource Data System* and *L.A. CEQA Thresholds Guide* (Section E4)

Comment: The HTP is located on a portion of an ancient dune system. The older dune sand deposits are formed almost entirely of fine- to medium-grained sands and silty sands, which are dense to very dense and slightly cemented. Underlying these deposits is the Lakewood formation, which is subsequently underlain by Tertiary sediments. The HTP DGUP area is not identified as a mineral resource recovery site on any land use plan. No known mineral resources of value to the region or state are known to exist within the facility. In addition, the HTP DGUP does not involve the extraction, or subsequent loss, of any known mineral resource. As a result, the HTP DGUP will not have any impact on mineral resources. No further analysis of this issue is required.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Reference: City of Los Angeles General Plan and L.A. CEQA Thresholds Guide (Sections H.1 & H.2)

Comment: See comment 11(b) above.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
12 NOISE				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Noise Element; City of Los Angeles Municipal Code;* and *L.A. CEQA Thresholds Guide* (Section I)

Comment: A significant noise impact could occur during construction if construction-related sound levels were to exceed the construction noise standards identified in the City of Los Angeles Municipal Code (LAMC 41.40). A significant noise impact could occur during operation of the DGUP if facility sound levels were to 1) exceed the noise limits identified in Chapter XI of the LAMC) or 2) exceed the levels identified in the general plan as suitable for residential/sensitive uses. Although the nearest residences to the HTP are located east of the site in the City of El Segundo, the noise limits established by the City are being applied in this assessment of potential noise impacts to nearby residences because the City is responsible for permitting the facility.

<u>Construction:</u>
The City of Los Angeles limits noise from individual pieces of construction equipment to a maximum of 75 dBA at a distance of 50 feet when the noise is received in a residential zone between the hours of 10 p.m. and 7 a.m. (LAMC 112.05a). Furthermore, LAMC 41.40c restricts construction to the hours of 7 a.m. to 9 p.m. if it results in noise disturbances to residences, hotels, or places where people sleep. Construction is restricted to between 8 a.m. and 6 p.m. on Saturdays and not allowed on Sundays where it occurs within 500 feet of land developed with residential buildings.

The L.A. CEQA Thresholds Guide identifies screening criteria for determining if noise from construction activities would result in a potential for significant impact, where a “no” response to both questions would indicate there would normally be no significant impact from the proposed Project. The criteria follow:

- Would construction activities occur within 500 feet of a noise sensitive use?
- For projects located within the City, would construction occur between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday?

The nearest sensitive receivers to the HTP are the residences in the City of El Segundo, approximately 250-450 feet east of the property boundary of HTP. However, these residences are approximately 900 feet or farther from the proposed equipment expected to be replaced or installed as part of this proposal. Therefore, construction activities associated with the DGUP, including removal of equipment currently housed in the ERB, would occur farther than 500 feet from the residences east of the facility.

In addition, construction activities will be restricted to the hours of 7:00 a.m. to 9:00 p.m., Monday through Friday. In the event that construction activities are required on Saturday, construction will occur between the hours of 8:00 a.m. to 6:00 p.m.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Therefore, no significant noise impact from construction is expected from the DGUP, and no further analysis of this issue is required.

Operation:

The City of Los Angeles noise regulation, Chapter XI of the Los Angeles Municipal Code (LAMC), limits increases in equipment noise received at nearby properties to 5 dBA or less over presumed ambient noise levels. The presumed ambient levels in residential zones are 50 dBA between 7:00 a.m. and 10:00 p.m. and 40 dBA between 10:00 p.m. and 7:00 a.m. (LAMC, Chapter XI, Section 111.03). The presumed ambient levels are the levels to be used when assessing compliance with the noise regulations.

In addition to the applicable noise limits, the Noise Element of the City's General Plan identifies noise levels considered suitable for residential uses. For single-family residences, CNEL levels between 50 and 60 dBA are considered "normally acceptable," CNEL levels between 55 and 70 dBA are considered "conditionally acceptable," and levels between 70 and 75 dBA are considered "normally unacceptable." Therefore, the existing sound levels of airport noise ranging from 65 to 70 dBA CNEL at the nearest residences to the facility would be considered "conditionally acceptable," while the existing level of up to 75 dBA CNEL would be considered "normally unacceptable."

The new power-generating equipment will be installed near the northern boundary of the site approximately 1,000 feet from the nearest residences east of the site. Equipment associated with the proposal includes three combustion turbines with associated air inlets, HRSGs, and lube oil skids. The combustion turbines will be Solar Mars 100 turbines. The combustion turbines, HRSGs, and lube oil skids would be housed in the existing ERB and are not expected to result in substantial levels of noise outside the building. Exhaust from the turbines/HRSGs would be routed through a single existing exhaust stack. The air inlets for the turbines are expected to be located on the north side of the ERB.

Using the above assumptions and sound level data provided by Solar and previous similar projects, the overall sound level from the exhaust stack and turbine air inlets was modeled at the nearest residences approximately 1,000 feet away using CadnaA. CadnaA is a noise model that considers the effects of distance, structures, topography, atmosphere, ground effects, and vegetation using sound propagation factors as adopted by International Organization for Standardization (i.e., ISO 9613). The overall sound level of 43 dBA from the proposed equipment at the most affected residences would not result in an increase in the ambient noise level by 5 dBA or more. Therefore, no significant noise impact from operation is expected from the DGUP, and no further analysis of this issue is required.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan*; *City of Los Angeles Municipal Code;* and *L.A. CEQA Thresholds Guide* (Section I)

Comment: A significant impact may occur if construction or operation-related groundborne vibration or groundborne noise levels are perceptible to off-site residential uses.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Construction of the DGUP involves minor soil disturbing activities and demolition. These activities are short-term and temporary in nature, and do not represent significant sources of groundborne noise or vibration. Therefore, no significant impact is expected, and no further analysis of this issue is required.

The new equipment to be installed as part of the DGUP is not a significant source of groundborne vibration. Operation of the DGUP is not expected to increase the level of groundborne vibration and no significant impact is expected. Therefore, no significant impact is expected, and no further analysis of this issue is required.

c) A substantial temporary or permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan*; *City of Los Angeles Municipal Code;* and *L.A. CEQA Thresholds Guide* (Section I)

Comment: A project may have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

A project may have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dBA or greater noise increase.

Construction:

See comment to 12(a). Construction activities will not occur within 500 feet of a sensitive noise receiver. Furthermore, construction activities will be restricted to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. Saturday. Therefore, no significant noise impact is expected due to construction activities. No further analysis of this issue is required.

Operation:

Sound level measurements taken by Veneklasen Associates in September 2009 captured a sound level of 67 dBA CNEL at the end of Maple Avenue, a location south of the most affected residences under this proposal. The sound levels at residences farther north are nearer to the Los Angeles International Airport (LAX) and are currently exposed to airport noise levels as high as 75 dBA CNEL. Noise from new equipment associated with the DGUP is calculated to be approximately 49 dBA CNEL, well below the existing ambient noise levels, and is not expected to result in an audible change (i.e., a greater than 3 dBA increase) in the existing noise environment at the nearest sensitive receivers to the HTP facility.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Therefore, no significant noise impact is expected due to operation with the DGUP. No further analysis of this issue is required.

d) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section I)

Comment: The HTP is adjacent to LAX and is currently exposed to levels of airport noise ranging from 65 to 75 dBA CNEL or higher. However, the DGUP would not result in new noise-sensitive uses (e.g., residences) being exposed to excessive levels of airport noise. Furthermore, the DGUP is not expected to increase the level of ambient noise significantly above that which occurs without the DGUP (see comment 12(a) above). Therefore, no significant noise impacts are expected due to this issue. No further analysis of this issue is required.

e) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section I)

Comment: There are no private airstrips in the vicinity of the Project area and therefore, no impact is expected related to private airstrips. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

13 POPULATION/HOUSING

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section J)

Comment: A significant impact may occur if the proposed Project induced substantial population and housing growth through new development in undeveloped areas or by introducing unplanned infrastructure that was not previously evaluated in the adopted community plan or general plan.

The HTP DGUP proposes additions and modifications to the equipment at the existing facility. Project-related activities will not involve an increase, decrease, or relocation of population. Construction of the HTP DGUP will require a maximum of 15 employees at any specific time, who are expected to come from the existing labor pool in the Los Angeles area. Operation of the HTP DGUP is expected to require less than ten new permanent employees. Therefore, construction and operation of the HTP DGUP are not expected to have significant impacts on population or housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans. No further analysis of this issue is required.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section J)

Comment: No housing is, or will be, located on the Project site. The proposed Project would not displace any existing housing units. Therefore, the proposed Project would result in no impacts related to housing displacement and replacement. No further analysis of this issue is required.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section J)

Comment: See comment 13(b) above.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

14 PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Safety Element* and *L.A. CEQA Thresholds Guide (*Section K.2)

Comment: A significant impact may occur if the Project required the addition of a new fire station or the expansion, consolidation or relocation of an existing facility to maintain service.

Fire protection services are provided to the HTP by the City of Los Angeles Fire Department. There are several stations in the vicinity that will respond; the closest is the LAX Station #95 (10010 International Road), followed by the LAX Station #51 (10435 Sepulveda Blvd.). In addition, Station #80, which is typically reserved for use at LAX, and Station #5, which is a new station, are both available in case additional dispatches are required. DGUP operations would not require fire or hazard services substantially beyond those required by the HTP (or any sizable wastewater treatment plant where methane is present). No new or altered government fire facilities would need to be constructed because of DGUP construction or operations, so no potentially significant impacts would result. No further analysis is required.

Police protection?	☐	☐	☐	☒

Reference: *City of Los Angeles General Plan Safety Element* and *L.A. CEQA Thresholds Guide* (Section K.1)

Comment: A significant impact may occur if the proposed Project were to result in an increase in demand for police services that would exceed the capacity of the police department responsible for serving the site.

The City of Los Angeles Police Department (LAPD) is the city agency charged with the primary responsibility for crime prevention, law enforcement, and apprehension of suspected violators. The closest City of Los Angeles police station is approximately five miles from HTP.

Police protection services are provided by the City of Los Angeles. In case of police-related issues, the LAPD will respond to the site directed by the Department of General Services Security Services (linked to the Office of Public Safety) at the Gate B Security at the HTP facility. The HTP DGUP will not cause or contribute to an increase in activity around the site or in the population around the site, and thus is not expected to result in an increase or other change in the need for police protection services.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Schools?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section K.3)

Comment: A significant impact may occur if the proposed Project included substantial employment or population growth that could generate demand for school facilities that exceeded the capacity of the school district responsible for serving the Project site.

The nearest schools to HTP are those located in the City of El Segundo under the jurisdiction of the El Segundo Unified School District.

The HTP DGUP involves the addition and modification of equipment at the existing facility. Employees from the local workforce are expected to fill the short-term construction positions, and less than 10 additional permanent workers are expected, drawn from the existing population. Therefore, the HTP DGUP is not expected to have a significant impact on schools, parks, or other public facilities. No further analysis of this issue is required.

Parks?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section K.4)

Comment: A significant impact may occur if the recreation and park services available could not accommodate the population increase resulting from the implementation of the proposed Project.

The nearest parks to HTP are those located in the City of El Segundo. There are no parks in the immediate vicinity of HTP.

See comment to 14(c). No further analysis of this issue is needed.

Other public facilities?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section K)

Comment: See comment to 14(c) above. Operation of the proposed Project would not induce growth, either directly or indirectly. The few additional employees would come from the existing population, and thus the DGUP is not anticipated to increase the demand or use for other public facilities in the Project area. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
15 RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section K.4)

Comment: A significant impact may occur if the proposed Project included substantial employment or population growth that generated demand for public park facilities that exceed the capacity of existing parks.

There are over 50 beaches in Los Angeles County, which are used almost all year long. Approximately three miles of beach border the HTP to the west. The largest beach is Dockweiler State Beach, which reaches from Marina Del Rey to Hermosa Beach and consists of approximately 275 acres.

The HTP DGUP involves the addition and modification of equipment at the existing facility with less than ten additional employees required at any time. It does not involve any expected change in the population in the surrounding area because the existing labor pool in the Los Angeles area is sufficient to fulfill the short-term labor requirements for construction of the HTP DGUP and longer term requirements for DGUP operation. Therefore, the HTP DGUP is not expected to cause or contribute to an increase in the use of recreation facilities or to require the construction of new or expanded recreation facilities near the HTP. No significant impact to recreational facilities is expected to occur as a result of the HTP DGUP. No further analysis of this issue is needed.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section K.4)

Comment: See comment 15(a) above.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
16 TRANSPORTATION/TRAFFIC				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section L)

Comment: A significant impact may occur if the proposed Project caused an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system taking into account all relevant components of the circulation system.

The HTP is located at the southeast corner of Imperial Highway and Vista del Mar. There are four entry/exit gates along Vista del Mar, although only one gate is presently in use. The other access gate is located along Imperial Highway.

Imperial Highway is a major east-west arterial that borders HTP to the north. In the vicinity of HTP, Imperial Highway is a four-lane roadway with a raised median and no parking. Left-turn lanes are provided at the signalized intersections with Pershing Drive and Vista del Mar.

Pershing Drive is a six-lane north-south roadway with a raised median. It provides access to the northern gate of HTP at the intersection with Imperial Highway. Parking is prohibited on Pershing Drive near HTP. Pershing Drive is a designated truck route south of Manchester.

Vista del Mar is a four-lane north-south roadway which parallels the Pacific Ocean coastline to the west of HTP. Vista del Mar provides access to HTP with no parking allowed on the street near the plant site.

Construction of the DGUP will require temporary construction workers; DGUP operation will require less than 10 new full-time employees. Sufficient parking for these workers is available on-site. In addition, approximately 10 to 20 trucks per year will be required for deliveries related to the control systems. Because the increased number of vehicles traveling to HTP on a daily basis will be minimal, the level of service (LOS) at nearby affected intersections is not expected to change from C to D, or to increase the volume to capacity ratio by 2% or more. It will also not conflict with any applicable plans or congestion management programs. As a result, less than significant impacts are expected. No further analysis of this issue is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section L)

Comment: See comment 16(a) above.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section L)

Comment: The DGUP involves new equipment and modifications to existing facilities. No delivery of materials and/or personnel via air is required, and the Project would not involve any changes in air traffic patterns. Therefore, the proposed Project would result in no impacts related to air traffic patterns. No further analysis of this issue is required.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section L)

Comment: A significant impact may occur if the proposed Project substantially increased road hazards due to a design feature or incompatible uses.

The DGUP does not involve construction of roads or the use of incompatible equipment on roads (e.g., farm equipment). Therefore, no increased hazards due to a design feature or incompatible use is expected. No further analysis of this issue is needed.

e) Result in inadequate emergency access?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section L.5 and L.8)

Comment: A significant impact may occur if the proposed Project resulted in inadequate emergency access.

The DGUP is not expected to result in inadequate emergency access at or adjacent to the HTP because the entries and exists to the HTP will remain unchanged. The increase in personnel will be minimal and not expected to affect emergency access or use. The existing emergency access gates will be maintained and any impacts would be less than significant.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Reference: *City of Los Angeles General Plan Transportation Element*

Comment: A significant impact may occur if the proposed Project were to conflict with adopted policies, plans, or programs supporting alternative transportation. See comment to 16(a) above. Impacts, if any, would be less than significant. No further analysis is required.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

17 UTILITIES/SERVICE SYSTEMS

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section M.2)

Comment: A significant impact may occur if the proposed Project exceeded wastewater treatment requirements of the local regulatory governing agency.

The HTP is an existing wastewater treatment plant. Modifications as a result of the DGUP will not alter the treatment capacity of the plant and are instead intended to utilize the digas produced on-site and to increase energy independence of the facility.

The HTP DGUP involves the addition and modification of equipment at the existing facility, and operation of the DGUP would not cause or contribute to a change in the quality or quantity of wastewater associated with the Project site. No further analysis of this issue is needed.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Sections M.1 and M.2)

Comment: A significant impact may occur if the proposed Project resulted in the need for new construction or expansion of water or wastewater treatment facilities that could result in an adverse environmental effect that could not be mitigated.

See comment to 17(a) above.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section M.2)

Comment: A significant impact may occur if the volume of storm water runoff from the proposed Project increases to a level exceeding the capacity of the storm drain system serving the Project site.

See comment to 17(a), 9(c), 9(d), and 9(e) above, since the volume of storm water runoff from the DGUP, if any, would be negligible and no new or modified storm water drainage facilities would be required. Thus there will be no impact.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section M.1)

Comment: A significant impact may occur if the proposed Project's water demands would exceed the existing water supplies that serve the site.

Water demands are expected to be approximately 150 gallons per minute for emissions control and make-up water for steam loop losses. The water demands will be met by using effluent water for cooling and potable water for steam production. The water needs would not exceed the existing water supplies available at HTP. The proposed Project is not expected to result in significant impacts on the water supplies.

See also comment to 17(a) above.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

Reference: *L.A. CEQA Thresholds Guide* (Section M)

Comment: See comment to 17(a) above.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section M.3); California Integrated Waste Management Board

Comment: A significant impact may occur if the proposed Project were to increase solid waste generation to a degree that existing and projected landfill capacities would be insufficient to accommodate the additional waste.

The removal of the existing equipment located in the building where the new equipment will be located will generate small amounts of waste metals that are not hazardous. These metals will be routed to authorized recyclers for recovery and reuse (i.e., sold as valuable scrap); therefore, they will not burden existing landfills. The demolition of other related structures is expected to generate minimal amounts of waste. The disposal of demolition waste (i.e., approximately 250 truck loads) would contribute to the diminishing available landfill capacity. However, sufficient landfill capacity currently exists to handle the one-time disposal of the minimal amount of material. Clean soil excavated to provide new foundations will be diverted to the existing market as clean reusable soil. Therefore, construction impacts of DGUP on waste treatment and disposal facilities are expected to be less than significant. All applicable federal, state, and local statutes and regulations will be followed.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

The spent catalyst from the SCR control equipment will need to be disposed of when it is removed. Our analysis assumes that the manufacturer and/or provider of the catalyst will accept the spent catalyst for disposal or regeneration. In addition, the catalyst is expected to be in working condition for an average of three years. As a result, the amounts (i.e., 330 cubic feet every three years) are expected to be small and impacts on landfills, if any, would be less than significant.

During operation, the DGUP is not expected to generate significant quantities of solid waste, which are primarily generated from administrative or office activities. The DGUP will not result in a significant increase in the number of permanent employees (i.e., less than 10) and so no significant increase in solid waste is expected. All applicable federal, state, and local statutes and regulations will be followed. No further analysis of this issue is needed.

g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Reference: *L.A. CEQA Thresholds Guide* (Section M.3)

Comment: A significant impact may occur if the proposed Project would generate solid waste that was in excess of or was not disposed of in accordance with applicable regulations.

The DGUP construction and/or operation will not generate waste in excess of, or not disposed in accordance with, applicable regulations.

See comment to 17(f) above.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

18 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐

Reference: Preceding analyses

Comment: There are no potentially significant impacts on aesthetics, agriculture and forestry resources, biological resources, cultural resources, geology/soils, hydrology/water quality, land use/planning, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, or utilities/service systems. No further analysis of these issues is required.

Potentially significant impacts may arise from air emissions, greenhouse gas emissions, and hazards/hazardous materials. These potentially significant impacts will be discussed in more detail in the EIR that will be prepared for the DGUP Power and Steam Generation Project.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐

Reference: Preceding analyses.

Comment: The proposed Project may result in potentially significant impacts in the areas of air quality, GHG emissions, and noise due to construction and operation of the DGUP. If feasible, mitigation measures would be proposed to reduce impacts to a less than significant level. However, there is the potential for these impacts to result in cumulatively considerable impacts. Further analysis of this issue is required.

c) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☒	☐

Reference: Preceding analyses.

Comment: The purpose of the proposed Project is to beneficially use the digas produced at the HTP facility and to ensure the continued operation of this essential public service facility in the event of an

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

emergency. The Project is anticipated to have positive long term impacts. Therefore the proposed Project would result in less than significant impacts and no further analysis of this issue is required.

d) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Reference: Preceding analyses.

Comment: Further technical analyses in the areas of air quality, GHGs, and hazards/hazardous materials will determine if the Project will have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly, and, if necessary, feasible mitigation measures could reduce any substantial impacts on human beings.

V. PREPARATION AND CONSULTATIONS:

A. Preparer

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707 Wilshire Boulevard, Suite 4950
Los Angeles, CA 90017

Julia C. Lester, Principal
Rachel Velthuisen, Project Manager

B. Coordination and Consultation

City of Los Angeles
Department of Public Works
Bureau of Sanitation
Regulatory Affairs Division
12000 Vista del Mar
Playa del Rey, CA 90293

Omar Moghaddam, Manager, Regulatory Affairs Division
Shahrouzeh Saneie, Assistant Division Manager
Kris Flaig, Project Manager

VI. DETERMINATION – RECOMMENDED ENVIRONMENTAL DOCUMENTATION

The BOS is proposing to construct and operate a digester gas/natural gas-fueled combined cycle cogeneration facility at HTP by 2015. The new operations will be a more efficient use of the digas and improve operations for BOS. The DGUP will consume all of the digas produced at HTP, provide up to 39 megawatt (MW) average electrical generation, and provide approximately 50,000 pounds per hour (lb/hr) of 30 pound per square inch gauge (psig) saturated process steam.

The new operations will be a more efficient use of the digas and will improve operations for BOS. These objectives contribute to five main goals at HTP:

- Provide process steam for HTP operations;
- Produce renewable energy for HTP operations;
- Allow HTP to operate without using external electrical power, which is subject to price changes and interruptions;
- Allow the HTP to operate “off the grid” so that, in the case of an emergency (e.g., earthquake, blackouts), the facility can continue operating and flaring can be avoided;
- Prevent the flare from operating continuously to dispose of the digas when it cannot be sent to SGS (post-2021); and
- Maintain the final output of Class A biosolids, even in the event of power/steam interruption, as opposed to the Class B biosolids that would likely result if not enough electricity and/or steam was available.

The proposed project includes the following key components:

- Install combustion turbine generators and steam turbine generators
- Install a digester gas cleanup system
- Install a fuel gas compression system
- Install a Black Start Engine Generator
- Install an oil/water separator

As described in this Initial Study, the proposed project may result in potentially significant impacts and would require the implementation of mitigation measures. Further analysis of these environmental issues should be provided in an EIR.

Recommended Environmental Documentation

On the basis of this initial evaluation, I find that the proposed project would have a significant effect on the environment, and an Environmental Impact Report should be prepared.

Reviewed by: ______________________________
Kris Flaig, Acting Environmental Engineer

Reviewed by: ______________________________
Jim Doty, Acting Environmental Affairs Officer, Bureau of Engineering

Approved by: ______________________________
Enrique C. Zaldivar, Director, Bureau of Sanitation by Omar Moghaddam, Manager, Regulatory Affairs Division

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VIII. LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Description
AHM	Acutely Hazardous Material
ALUC	Airport Land Use Commission
ALUP[6]	Airport Land Use Plan
AQMP	Air Quality Management Plan
BOS	Bureau of Sanitation
CalARP	California Accidental Release Prevention
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CH	Methane
CH_4	Methane
City	City of Los Angeles
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CTGs	Combustion Turbine Generators
dBA	A-Weighted Decibels
DGUP	Digester Gas Utilization Project
Digas	Digester Gas
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EPCRA	Emergency Planning and Community Right-To-Know Act
ERB	Energy Recover Building
GAC	Granular Activated Carbon
GHG	Greenhouse Gas
H_2S	Hydrogen Sulfide
HAS	Hyperion Service Area
HERS	Hyperion Energy Recovery System
HP	High-Pressure
HRSG	Heat Recovery Steam Generator
HTP	Hyperion Treatment Plant
IS	Initial Study
kW	Kilowatt
LADPW	City of Los Angeles Department of Public Works
LADWP	Los Angeles Department of Water and Power
LAPD	Los Angeles Police Department
LAX	Los Angeles International Airport
lb/hr	Pounds Per Hour
Ldn	Day-Night Sound Level
LOS	Level of Service

[6] Los Angeles County Airport Land Use Plan. 1991. Los Angeles County Airport Land Use Commission. Developed by the Department of Regional Planning. Available at: http://planning.lacounty.gov/assets/upl/data/pd_alup.pdf. Accessed 27 August 2010.

Abbreviation/Acronym	**Description**
LP	Low-Pressure
mg/m^3	Microgram Per Cubic Meter
MND	Mitigated Negative Declaration
MSL	Mean Sea Level
MW	Megawatts
ND	Negative Declaration
NO_2	Nitrogen Oxide
NO_x	Nitrogen Oxides
OC	Oxidation Catalyst
OS	Open Space
PM_{10}	Particulates 10 Microns or Smaller
ppm	Parts Per Million
psig	Pound Per Square Inch Gauge
RAD	Regulatory Affairs Division
RAS	Return Activated Sludge
RFP	Request For Proposals
RMP	Risk Management Program
ROG	Reactive Organic Gases
SCAQMD	South Coast Air Quality Management District
SCR	Selective Catalytic Reduction
SGS	Scattergood Generating Station
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
STGs	Steam Turbine Generator
TAC	Toxic Air Contaminant
UBC	Uniform Building Code
ULSFO	Ultra-Low Sulfur Fuel Oil
USEPA	US Environmental Protection Agency
USFWS	US Fish And Wildlife Service
VOC	Volatile Organic Compound
WAS	Waste Activated Sludge
ZIMAS	Zone Information & Map Access System

Digester Gas Utilization Project Air Study
Co-Generation Facility

"Permit" Version

City of Los Angeles
Department of Public Works
Bureau of Sanitation
Hyperion Treatment Plant
12000 Vista Del Mar
Playa Del Rey, CA 90293

SCAQMD Facility ID#:
800214

February 2011

Prepared by:

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Digester Gas Utilization Project
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1.0 INTRODUCTION

The City of Los Angeles, Department of Public Works, Bureau of Sanitation (BOS) owns and operates the Hyperion Treatment Plant (HTP) located at 12000 Vista Del Mar in the community of the City of Los Angeles known as Playa Del Rey, immediately adjacent to the Los Angeles International Airport (LAX) and the City of El Segundo. HTP generates digester gas from the anaerobic digestion of wastewater solids. The digester gas is currently sent to the Scattergood Generating Station (SGS), owned and operated by the City of Los Angeles Department of Water and Power. SGS uses the digester gas to fuel electrical generation equipment and electricity is sold to HTP under a separate agreement. Starting on January 1, 2015, SGS will no longer accept the digester gas produced by HTP. The BOS commissioned the Digester Gas Utilization Project (DGUP) to study alternative ways of utilizing the digester gas. The approach presented here utilizes the digester gas as a fuel for three combustion turbine generators (CTG) that will produce electricity and steam for use by HTP.

Yorke Engineering, LLC (Yorke) conducted a study on the impacts to air quality associated with the Digester Gas Utilization Project (DGUP), Co-Generation Facility. This facility will be constructed within the existing Hyperion Treatment Plant.

2.0 EQUIPMENT DESCRIPTION AND OPERATING SCENARIOS

The HTP currently produces about 7.1 million standard cubic feet per day (MMSCFD) of digester gas (at 626 BTU/scf HHV) and may produce up to 9.6 MMSCFD of digester gas in the future. The facility will have two operating scenarios outlined in this document. Scenario 1 has three CTGs operated with digester gas and supplemented by natural gas; Scenario 2 has the CTGs operated solely on digester gas and so only one or two CTGs will be used at any given time.

The co-generation system will utilize the digester gas produced by the anaerobic digesters at HTP to fuel combustion turbines to produce electricity and steam.

The co-generation system will consist of the following major components:

- Three Solar Mars 100 Series Combustion Turbine Generators (CTGs);
- Three Oxidation Catalyst Systems (OCSs);
- Three Selective Catalytic Reduction Systems (SCRs);
- Three Heat Recovery Steam Generators (HRSGs); and
- One Non-Condensing and one Condensing Steam Turbine Generator (STG).

A diagram of the process is shown in Figure 1.

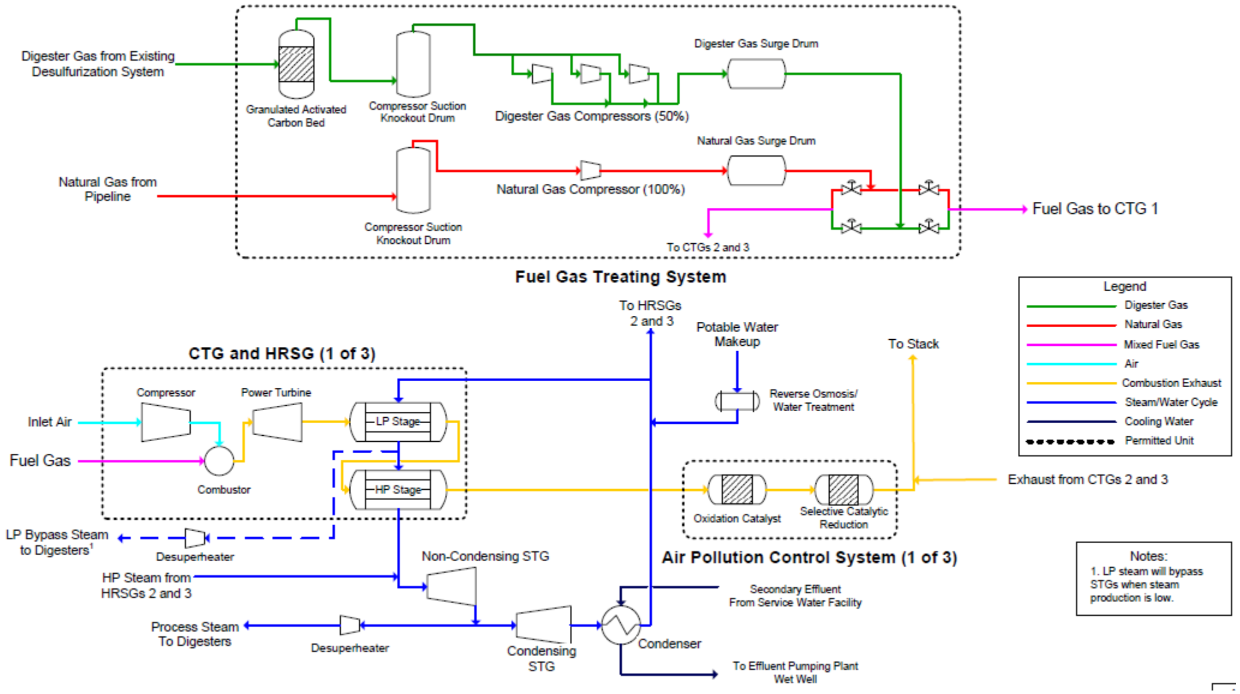

Figure 1. Process Flow Diagram

2.1 Combustion Turbine Generator

The CTG system will consist of three Solar Mars 100 turbines. Each turbine will drive a 9.9 MW electric generator. Each turbine will be equipped with a heat recovery steam generator (HRSG) that will extract heat from the turbine's exhaust to produce steam. Some of the steam will be diverted to the HTP waste treatment processes. The remaining steam will be used to drive two steam turbine generators (STG) in series, one non-condensing and one condensing, that together will be capable of producing an additional 3 MW of electricity for each CTG that provides steam for a total of up to 9 MW.

The turbines will be fueled primarily by digester gas with some natural gas added to supplement the heat content of the fuel. A minimum of 60 percent digester gas will be used at all times.

2.2 Emission Controls

Each CTG will be equipped with water injection to lower the combustion temperature, thereby reducing thermal NOx, the formation of oxides of nitrogen (NO_X) at high temperatures. In addition, a selective catalytic reduction (SCR) system will ensure that the emissions meet the current SCAQMD BACT emission level of 25 ppmv NOx. Each CTG will also be equipped with an oxidation catalyst system (OCS), which will reduce emissions of carbon monoxide (CO) to 60 ppmv, and emissions of volatile organic compounds (VOC) to the BACT emission level of 25 ppmv. The OCS will also oxidize carbon monoxide (CO) into carbon dioxide (CO_2), which is not a criteria pollutant.

2.3 Heat Recovery Steam Generators

The Heat Recovery Steam Generators (HRSG) are energy recovery heat exchangers that recover the heat from the turbine exhaust and produces steam which is used to drive the steam turbines.

2.4 Steam Turbine Generators

Under full CTG load, the HRSGs will produce high pressure steam which is sent to two steam turbines in series: the first non-condensing and the second condensing. Downstream of the non-condensing and upstream of the condensing STGs will be an extraction line to meet HTP's 50,000 lb/hr saturated steam requirement. Steam is extracted from this location under normal operation. At low CTG loads, when steam production is much less, steam will be extracted from the LP section of the HRSG to provide process steam. In this case the steam will bypass the STGs.

3.0 EMISSION FACTORS

Emissions were calculated for the proposed co-generation system. The co-generation system will be designed to utilize all of the digester gas produced by HTP. CTG emissions were calculated for two potential operating scenarios:

Scenario 1 - Digester Gas with Natural Gas Supplement: The three (3) CTGs will combust digester gas supplemented by natural gas. The turbines will use a minimum of 60 percent digester at all times.

Scenario 2 – 100% Digester Gas: The turbines will combust only digester gas, no natural gas will be used to supplement the heat content. Only one (1) or two (2) CTGs will be used at any given time.

3.1 Co-Generation Emissions

3.1.1 Criteria Pollutants

Emission limits for criteria pollutants are proposed, based on the expected requirements of Best Available Control Technology (BACT), and applicable rules. The key BACT listing is the digester gas fueled turbines at Los Angeles County Sanitation District (LACSD) in Carson (A/N 358625). For the other criteria pollutants, emission factors were determined based on SCAQMD default emission factors.

3.1.1.1 NO_X

It is expected, based on discussions with SCAQMD, that the NO_X BACT level will be 25 ppmv, corrected to 15% O_2, as long as a minimum of 60% digester gas is used. This limit applies for both operating scenarios. If the amount of digester gas was below 60%, a lower NO_X limit may apply as identified in SCAQMD Rule 1134. Rule 1134(c)(1) establishes a NO_X limit of 25 ppmv for turbines in the range of "2.9 to less than 10 MW utilizing fuel containing a minimum of 60% sewage digester gas by volume on a daily average." Since the generators are sized at 9.9 MW each, this limit is applicable.

Information provided by Solar indicates that water injection will be used to lower the combustion temperature in the turbine, which will result in lower NO_X emissions. The uncontrolled NOx emissions using water injection only are expected to be 60 ppmv corrected to 15% O_2. To further reduce NO_X emissions, a post-combustion Selective Catalystic Reduction (SCR) system will be utilized. The SCR system will reduce emissions of NO_X to meet the BACT level of 25 ppmv, corrected to 15% O_2.

3.1.1.2 CO

Information provided by Solar indicates that uncontrolled emissions of CO are expected to be approximately 200 ppmv. A post-combustion oxidation catalyst will be utilized to reduce the CO emissions to the expected BACT level of 60 ppmv, corrected to 15% O_2.

3.1.1.3 VOC

There is not a VOC limit in the minor source BACT listing for digester gas fueled turbines or in Rule 1134. The BACT listing for the digester gas fueled turbines at LACSD do not set a ppm limit for ROG (VOC) but states that the permit limit is 4.5 lb/hour. A BACT limit of 25 ppmv corrected to 15% O_2 is proposed which is equal to the NO_X limit of 25 ppm. The BACT limits for NOx and VOC are generally about the same. The oxidation catalyst will serve to reduce emissions of VOC. The uncontrolled VOC emissions are expected to be 100 ppmv, corrected to 15% O_2. These emission factors apply to both operating scenarios.

3.1.1.4 PM_{10}

The PM_{10} BACT limit for turbines combusting digester gas is "Fuel Gas Treatment for Particulate Removal." This means that since either of the fuels, natural gas or digester gas, have been treated to minimize particulate matter, the proposed project meets BACT for PM_{10}. Emissions of PM_{10} were calculated using USEPA AP-42 emission factors (Chapter 3, Section 1, Tables 3.1-2a & b). For digester gas, the PM_{10} emission factor is 0.012 lbs/MMBtu. For natural gas, the emission factor is for total PM is 0.0066 lbs/MMBtu; for natural gas we assume that all PM is PM_{10}.

3.1.1.5 SO_X

Emissions of SO_X, regardless of the fuel being consumed, are based on SCAQMD Rule 431.1 and the historical performance of the digester gas sulfur treatment system at HTP. Mass balance is used to calculate the SO_X emissions at the exhaust. The digester gas is treated by an H_2S removal system prior to being mixed with the natural gas. The treated digester gas will have a sulfur content of 20 ppmv. Natural gas has a sulfur content limit of 15 ppmv.

3.1.2 Toxic Air Contaminants

Emissions of toxic air contaminants (TAC) were calculated using SCAQMD's emission factors for natural gas and digester gas combustion as published in their AB2588 supplement to the Annual Emission Reporting (AER) guidelines. The emission factors (EFs) used in this analysis are listed in Table 1.

Table 1. Digester Gas and Natural Gas TAC Emission Factors for Stationary Turbines

Pollutant (TAC)	CAS	Uncontrolled EF (lbs/MMscf)	
		DG	NG
1,3 Butadiene	106990	5.880E-03	4.390E-04
1,4 Dichlorobenzene	106467	1.200E-02	0.000E+00
Acetaldehyde	75070	3.180E-02	4.080E-02
Acrolein	107028	0.000E+00	6.530E-03
Ammonia	7664417	3.200E+00	3.200E+00
Arsenic	7440382	1.380E-03	0.000E+00
Benzene	71432	0.000E+00	1.220E-02
Cadmium	7440439	3.480E-04	0.000E+00

Carbon tetrachloride	56235	1.200E-02	0.000E+00
Chloroform	67663	1.020E-02	0.000E+00
Ethylbenzene	100414	0.000E+00	3.260E-02
Ethylene dichloride	107062	9.000E-03	0.000E+00
Formaldehyde	50000	1.140E-01	7.240E-01
Lead	7439921	2.040E-03	0.000E+00
Methylene chloride	75092	7.800E-03	0.000E+00
Naphthalene	91203	0.000E+00	1.330E-03
Nickel	7440020	1.200E-03	0.000E+00
PAHs	1151	0.000E+00	9.180E-04
Perchloroethylene	127184	1.260E-02	0.000E+00
Propylene oxide	75569	0.000E+00	2.960E-02
Selenium	7782492	6.600E-03	0.000E+00
Toluene	108883	0.000E+00	1.330E-01
Trichloroethylene	79016	1.080E-02	0.000E+00
Vinyl chloride	75014	2.160E-02	0.000E+00
Xylene	1330207	0.000E+00	6.530E-02

The use of an oxidation catalyst is expected to reduce TAC emissions by 97.7%. This value has been generally accepted by the SCAQMD permitting staff for other oxidation catalyst installations.

4.0 EMISSION CALCULATIONS

4.1 Scenario 1 - Digester Gas (Primary) with Natural Gas (Secondary) Blend

Under this operating scenario, the CTGs will be fueled primarily by digester gas and supplemented by up to 40% natural gas. The co-generation system will consume all 9.6 MMscf/day of digester gas produced by the anaerobic digesters. The controlled emissions for one CTG under this scenario are summarized in Table 2. Details of the calculations can be found in the attached spreadsheets in Appendix A.

Table 2. Controlled Criteria Pollutant Emissions per CTG – Scenario 1 Digester Gas / Natural Gas

Pollutant	Emission Factor	units	lbs/hr	lbs/day	lbs/year	tons/year
NO_X	25	ppm	11.53	276.78	101,023	50.51
CO	60	ppm	16.85	404.33	147,581	73.79
VOC	25	ppm	4.01	96.27	35,138	17.57
PM_{10}	0.012 / 0.0066	lbs/MMBtu	1.21	29.07	10,610	5.30
SO_X	20/15	ppm	0.52	12.41	4,530	2.26
NH_3	5	ppm	0.85	20.46	7,467	3.73
CO_2 as Combustion Product			13,836	332,062	121,202,635	***54,978 MT/yr***
CO_2 as Pass-through from Fuel			5,032	120,765	44,079,388	***19,994 MT/yr***

The TAC emissions are shown in Table 3. Details of the calculations can be found in the attached spreadsheets in Appendix A.

Table 3. Controlled TAC Emissions per CTG – Scenario 1 - Digester Gas / Natural Gas

Pollutant	CAS	DG	NG	Total	Total	Total

		(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/year)	(tons/year)
1,3 Butadiene	106990	1.593E-05	4.755E-07	1.640E-05	1.437E-01	7.185E-05
1,4 Dichlorobenzene	106467	3.251E-05	0.000E+00	3.251E-05	2.848E-01	1.424E-04
Acetaldehyde	75070	8.614E-05	4.419E-05	1.303E-04	1.142E+00	5.709E-04
Acrolein	107028	0.000E+00	7.073E-06	7.073E-06	6.196E-02	3.098E-05
Ammonia	7664417	N/A	N/A	8.524E-01	7.467E+03	3.734E+00
Arsenic	7440382	3.738E-06	0.000E+00	3.738E-06	3.275E-02	1.637E-05
Benzene	71432	0.000E+00	1.322E-05	1.322E-05	1.158E-01	5.788E-05
Cadmium	7440439	9.427E-07	0.000E+00	9.427E-07	8.258E-03	4.129E-06
Carbon tetrachloride	56235	3.251E-05	0.000E+00	3.251E-05	2.848E-01	1.424E-04
Chloroform	67663	2.763E-05	0.000E+00	2.763E-05	2.421E-01	1.210E-04
Ethylbenzene	100414	0.000E+00	3.531E-05	3.531E-05	3.093E-01	1.547E-04
Ethylene dichloride	107062	2.438E-05	0.000E+00	2.438E-05	2.136E-01	1.068E-04
Formaldehyde	50000	3.088E-04	7.842E-04	1.093E-03	9.575E+00	4.788E-03
Lead	7439921	5.526E-06	0.000E+00	5.526E-06	4.841E-02	2.421E-05
Methylene chloride	75092	2.113E-05	0.000E+00	2.113E-05	1.851E-01	9.255E-05
Naphthalene	91203	0.000E+00	1.441E-06	1.441E-06	1.262E-02	6.310E-06
Nickel	7440020	3.251E-06	0.000E+00	3.251E-06	2.848E-02	1.424E-05
PAHs	1151	0.000E+00	9.944E-07	9.944E-07	8.711E-03	4.355E-06
Perchloroethylene	127184	3.413E-05	0.000E+00	3.413E-05	2.990E-01	1.495E-04
Propylene oxide	75569	0.000E+00	3.206E-05	3.206E-05	2.809E-01	1.404E-04
Selenium	7782492	1.788E-05	0.000E+00	1.788E-05	1.566E-01	7.831E-05
Toluene	108883	0.000E+00	1.441E-04	1.441E-04	1.262E+00	6.310E-04
Trichloroethylene	79016	2.926E-05	0.000E+00	2.926E-05	2.563E-01	1.281E-04
Vinyl chloride	75014	5.851E-05	0.000E+00	5.851E-05	5.126E-01	2.563E-04
Xylene	1330207	0.000E+00	7.073E-05	7.073E-05	6.196E-01	3.098E-04
Total TAC				**0.8542**	**7483.11**	**3.74**
Total HAP				**0.0018**	**16.08**	**0.01**

4.2 Scenario 2 – 100% Digester Gas

Under this operating scenario, the CTGs will be fueled by 100% digester gas. The emissions under this scenario are summarized in Table 4. Details of the calculations can be found in the attached spreadsheets in Appendix A.

Table 4. Controlled Criteria Pollutant Emissions per CTG – Scenario 2 - 100% Digester Gas						
Pollutant	**factor**	**units**	**lbs/hr**	**lbs/day**	**lbs/year**	**tons/year**
NO_X	25	ppm	11.50	276.11	100,779	50.39
CO	60	ppm	16.81	403.36	147,226	73.61
VOC	25	ppm	4.00	96.04	35,054	17.53
PM_{10}	0.012	lbs/MMBtu	1.47	35.39	12,918	6.46
SO_X	20	ppm	0.66	15.91	5,808	2.90
NH_3	5	ppm	0.85	20.41	7,449	3.72
CO_2 as Combustion Product			14,130	339,108	123,774,597	56,144 MT/yr
CO_2 as Pass-through from Fuel			8,204	196,902	71,869,121	32,600 MT/yr

The expected TAC emissions are shown in Table 5. Details of the calculations can be found in the attached spreadsheets in Appendix A.

Table 5. Controlled TAC Emissions per CTG – Scenario 2 – 100% Digester Gas				
Pollutant	**CAS**	**Total (lbs/hr)**	**Total (lbs/year)**	**Total (tons/year)**
1,3 Butadiene	106990	2.655E-05	2.326E-01	1.163E-04
1,4 Dichlorobenzene	106467	5.418E-05	4.746E-01	2.373E-04
Acetaldehyde	75070	1.436E-04	1.258E+00	6.289E-04
Acrolein	107028	0.000E+00	0.000E+00	0.000E+00
Ammonia	7664417	6.282E-01	5.503E+03	2.751E+00
Arsenic	7440382	6.231E-06	5.458E-02	2.729E-05
Benzene	71432	0.000E+00	0.000E+00	0.000E+00
Cadmium	7440439	1.571E-06	1.376E-02	6.882E-06
Carbon tetrachloride	56235	5.418E-05	4.746E-01	2.373E-04
Chloroform	67663	4.605E-05	4.034E-01	2.017E-04
Ethylbenzene	100414	0.000E+00	0.000E+00	0.000E+00
Ethylene dichloride	107062	4.063E-05	3.560E-01	1.780E-04
Formaldehyde	50000	5.147E-04	4.509E+00	2.254E-03
Lead	7439921	9.210E-06	8.068E-02	4.034E-05
Methylene chloride	75092	3.522E-05	3.085E-01	1.542E-04
Naphthalene	91203	0.000E+00	0.000E+00	0.000E+00
Nickel	7440020	5.418E-06	4.746E-02	2.373E-05
PAHs	1151	0.000E+00	0.000E+00	0.000E+00
Perchloroethylene	127184	5.689E-05	4.983E-01	2.492E-04
Propylene oxide	75569	0.000E+00	0.000E+00	0.000E+00
Selenium	7782492	2.980E-05	2.610E-01	1.305E-04
Toluene	108883	0.000E+00	0.000E+00	0.000E+00
Trichloroethylene	79016	4.876E-05	4.271E-01	2.136E-04
Vinyl chloride	75014	9.752E-05	8.543E-01	4.271E-04
Xylene	1330207	0.000E+00	0.000E+00	0.000E+00
Total TAC		**0.6293**	**5512.96**	**2.76**
Total HAP		**0.0012**	**10.25**	**0.01**

5.0 AIR DISPERSION MODELING

5.1 Overview

Air dispersion models simulate the atmospheric transport and fate of a pollutant, from the point of emission to the location of impact, to arrive at ambient air concentration estimates of the pollutant at some other point, such as a receptor at ground level. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal amounts due to dry and wet deposition, are influenced by the pollutant's physical and chemical properties, and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration of an air pollutant. Both operating scenarios were evaluated to determine if any scenario would exceed ambient air quality standards.

SCAQMD has determined that emissions from emergency equipment are not significant and does not require air dispersion modeling to be performed as identified in SCAQMD Regulation XIII, Rule 1304(a)(4). Therefore, the black start generator was not included in the air dispersion model.

5.2 Model Selection

The atmospheric dispersion modeling methodology is based on generally accepted modeling practices and modeling guidelines of both the USEPA and the SCAQMD. Air dispersion modeling for criteria pollutant impacts was performed using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD, Version 07026).

5.3 Modeling Options

The AERMOD model was run following the SCAQMD's AERMOD Implementation Guide, Revised March 19, 2009. The default modeling parameters were used except for the URBANOPT keyword was used to implement the urban algorithms of AERMOD. The boiler was identified as the source to which the algorithm should be applied. The population for Los Angeles County of 9,862,049 was obtained from the SCAQMD's website, which is based on the 2008 estimates by the US Census Bureau.

5.4 Source Parameters

Building downwash parameters were included for this analysis, since the turbine stack is connected to a large building. The downwash effects of the building could impact the dispersion of the emissions.

The turbine stack was modeled as a point source. The source release parameters included exit velocity, exit temperature, stack height, and stack diameter. The source was modeled using a unit emission rate of 1.0 gram per second (g/s). Table 6 lists the source parameters used for modeling the turbine. The modeling files are included on the attached CD.

Table 6. Air Dispersion Modeling Stack Parameters

	Release Height (m)	Temp. (K)	Stack Velocity (m/s)	Stack Diameter (m)
Scenario 1	38.5572	372.0389	5.2790	3.048
Scenario 2	38.5572	372.0389	5.2663	3.048

5.5 Meteorological Data

The SCAQMD has established a standard set of meteorological data files for use in air quality modeling in the South Coast Air Basin. For the HTP facility, the LAX meteorological data file was used, which contains data from the years 2005 through 2007.

5.6 Receptors and Elevation Data

The local topography of the area surrounding the facility is mostly flat. Based on information obtained from the United States Geological Survey (USGS), the elevation for the Facility is approximately 20 to 40 feet above sea level (ASL). The homes to the east are at approximately 80 to 120 feet ASL.

Appropriate model receptors must be selected to determine the worst-case modeling impact. A grid of receptors was created spaced 100 meters apart and extending 2.0 km west, 2.0 km east, 1.5 km north, and 1.5 km south of the facility.

5.7 Results

The model calculates the ground level concentration of a pollutant in units of $\mu g/m^3$. We use an unit emission rate of 1 g/sec to calculate a dispersion factor in terms of $(\mu g/m^3)/(g/sec)$; a parameter known as χ/Q. χ/Q was determined for each receptor and entered into a spreadsheet. This χ/Q value is then multiplied by the actual emission rate of each pollutant to determine the ground level concentration (GLC) in units of $(\mu g/m^3)$ for that pollutant. The GLC is added to the existing ambient air concentrations to determine whether there will be a violation of the ambient air quality standards.

The ambient air quality standards and the allowable changes in air quality are listed in SCAQMD Rule 1303, Table A-2. These standards have changed since this rule was adopted. Table 7 lists the latest standards as published by the California Air Resources Board as of 09/08/10 along with the Rule 1303 allowable change concentrations.

Table 7. Rule 1303 Table A-2:
Ambient Air Quality Standards and Threshold for Significant Change

Pollutant	Averaging Time	Most Stringent AQ Standard	Significant Change in Air Quality Concentration
NO_2	1-hour	0.18 ppm or 338 $\mu g/m^3$	1 pphm or 20 $\mu g/m^3$
	Annual	0.03 ppm or 56 $\mu g/m^3$	0.05 pphm or 1 $\mu g/m^3$
CO	1-hour	20 ppm or 23,000 $\mu g/m^3$	1 ppm or 1100 $\mu g/m^3$
	8-hour	9 ppm or 10,000 $\mu g/m^3$	0.45 ppm or 500 $\mu g/m^3$
PM_{10}	24-hour	50 $\mu g/m^3$	2.5 $\mu g/m^3$
	Annual	20 $\mu g/m^3$	1 $\mu g/m^3$
SO_2	1-hour	0.25 ppm or 655 $\mu g/m^3$	N/A
	3-hour	0.5 ppm or 1300 $\mu g/m^3$	N/A
	24-hour	0.04 ppm or 105 $\mu g/m^3$	1 $\mu g/m^3$

The SCAQMD publishes ambient air quality concentrations at monitoring stations throughout the air basin. Table 8 shows the ambient air concentrations reported for the Southwest Coastal LA County station, which is the closest to HTP, for years 2006 - 2008.

Table 8. Historical Ambient Air Concentration Levels

Year	NO_2 (ppm)		CO (ppm)		PM_{10} ($\mu g/m^3$)		SO_2 (ppm)	
	1-hr	**Annual**	**1-hr**	**8-hr**	**24-hr**	**Annual**	**1-Hr**	**24-hr**
2006	0.1	0.0155	3	2.3	45	26.5	0.02	0.006
2007	0.08	0.014	3	2.4	96	27.7	0.02	0.009
2008	0.09	0.0143	4	2.5	50	25.6	0.02	0.005
Max	**0.1**	**0.0155**	**4**	**2.5**	**96**	**27.7**	**0.02**	**0.009**
Standard	***0.18***	***0.03***	***20***	***9***	***50***	***20***	***0.25***	***0.04***

The SCAQMD does not monitor SO_X for the 3-hour standard. However, since the 3-hour standard is higher than the 1-hour standard, demonstrating compliance with the 1-hour standard shows compliance with the 3-hour standard.

Note that all pollutants are below the ambient air standards except for 24-hr PM_{10}, which exceeded the ambient standard in 2007 and was right at the standard in 2008.

So, for all pollutants except PM_{10}, we demonstrate compliance with the modeling requirement by adding the maximum ambient concentration to the AERMOD maximum GLC to see if it exceeds the standard. For PM_{10}, we only have to show that the amount of increase in PM_{10} concentration does not exceed the "significant change" threshold.

Both operating scenarios were modeled. It was found that the Scenario 2 (100% digester gas) operating parameters would result in the highest air quality impacts. Tables 9 and 10 summarize the AERMOD χ/Q results outside the fence line for various averaging times for the each of the three years of meteorological data available for Scenarios 1 and 2, respectively. Note that the Scenario 2 results are slightly higher than Scenario 1. The full results for both scenarios are included in Appendix B.

Table 9. AERMOD Predicted Dispersion Factor - Scenario 1, χ/Q ($\mu g/m^3$)/(g/sec)

Year	1-Hr	8-Hr	24-Hr	Annual
2005	14.65023	9.63709	3.96212	0.92172
2006	13.41329	5.23713	2.10366	0.87721
2007	16.58914	9.14521	3.84839	0.86129

Table 10. AERMOD Predicted Dispersion Factor - Scenario 2, χ/Q ($\mu g/m^3$)/(g/sec)

Year	1-Hr	8-Hr	24-Hr	Annual
2005	14.66901	9.6571	3.97214	0.92312
2006	13.43586	5.24564	2.10722	0.87867
2007	16.60423	9.15131	3.85355	0.86257

We then added these predicted concentrations to the existing ambient air levels. The results are then compared to the ambient air quality standard or for PM_{10}, the SCAQMD "significant change" level.

The summary of the results for Scenario 1 are shown in Table 11 and for Scenario 2 in Table 12. Results for both operating scenarios are included in Appendix B.

Table 11. AERMOD Modeling Results – Scenario 1 (µg/m³)

	NO_2		CO		PM_{10}		SO_2	
	1-hr	**Annual**	**1-hr**	**8-hr**	**24-hr**	**Annual**	**1-Hr**	**24-hr**
AERMOD Predicted GLC	24.105	1.339	35.214	20.457	0.605	0.141	1.081	0.258
Monitored Background Concentration	188	29	4600	2778	N/A	N/A	52	24
Total GLC	**212**	**31**	**4635**	**2798**	**1**	**0**	**53**	**24**
Standard	338	56	20000	9000	2.5	1	655	105
Compliant (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Table 12. AERMOD Modeling Results – Scenario 2 (µg/m³)

	NO_2		CO		PM_{10}		SO_2	
	1-hr	**Annual**	**1-hr**	**8-hr**	**24-hr**	**Annual**	**1-Hr**	**24-hr**
AERMOD Predicted GLC	24.069	1.338	35.162	20.450	0.738	0.172	1.387	0.332
Monitored Background Concentration	188	29	4600	2778	N/A	N/A	52	24
Total GLC	**212**	**31**	**4635**	**2798**	**1**	**0**	**54**	**24**
Standard	338	56	20000	9000	2.5	1	655	105
Compliant (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

The results for both scenarios show that the project will not cause an exceedance of any ambient air quality standard for NO_2, CO, and SO_2. For PM_{10}, since the ambient air quality data already shows an exceedance of the standard, the project will not cause a significant change in the ambient air concentration of PM_{10}.

6.0 HEALTH RISK ASSESSMENT

A Health Risk Assessment (HRA) is required for any new permit unit with an increase in emissions of toxic air contaminants (TAC). SCAQMD Rule 1401 specifies how new source review is performed for TACs and limits the health risk increase resulting from the increase in TAC emissions from a new or modified permit unit. The health risk analysis calculates the increase in health risk indices for comparison with the Rule 1401 standards. Table 13 summarizes these health risk standards. T-BACT is Toxic Best Available Control Technology.

Table 133. Rule 1401 Incremental Increase Health Risk Limits

Health Risk Index	Limit
Maximum Individual Cancer Risk (MICR)	1 in a million without T-BACT
	10 in a million with T-BACT
Chronic Hazard Index (CHI)	1.0
Acute Hazard Index (AHI)	1.0

An AB2588 HRA report was previously performed for the entire HTP facility and was submitted to the staff at HTP for review. The results from the September 17, 2010 draft HRA report will be used as the baseline for determining the incremental increase in health risk impacts from the proposed project. All modeling parameters and modeling files from the baseline HRA report were used as the basis for adding new equipment under this project.

6.1 Overview

Once the concentrations of the pollutants are determined through dispersion modeling, exposure assessments are performed to determine the health impacts on nearby residential and offsite worker receptors.

Dose-response assessment is the process of characterizing the relationship between exposure to an agent and incidence of an adverse health effect in exposed populations. In quantitative carcinogenic risk assessment, the dose-response relationship is expressed in terms of a potency slope that is used to calculate the probability or risk of cancer associated with an estimated exposure. Cancer potency factors are expressed as the 95th percent upper confidence limit of the slope of the dose response curve estimated assuming continuous lifetime exposure to a substance at a dose of one milligram per kilogram of body weight-day and commonly expressed in units of inverse dose (i.e., $(mg/kg/day)^{-1}$).

It is assumed in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis. OEHHA has compiled cancer potency factors, which are used in health risk assessments for the "Hot Spots" program. Cancer potency factors were derived either by the U.S. EPA or by OEHHA. The official potency factors applied in this HRA are obtained from OEHHA publications. For a detailed description of cancer potency factors, refer to OEHHA Guidelines: Part II, Technical Support Document for Describing Available Cancer Potency Factors.

For noncarcinogenic effects, dose-response data developed from animal or human studies are used to develop acute and chronic noncancer Reference Exposure Levels (RELs). The acute and chronic RELs are defined as the concentration at which no adverse noncancer adverse health effects are anticipated. The most sensitive health effect is chosen to determine the REL if the chemical affects multiple organ systems. Unlike cancer health effects, noncancer acute and chronic health effects are generally assumed to have thresholds for adverse effects. In other words, acute or chronic injury from a pollutant will not occur until exposure to that pollutant has reached or exceeded a certain concentration (i.e., threshold). The acute and chronic RELs are intended to be below the threshold for health effects for the general population. The actual threshold for health effects in the general population is generally not known with any precision. Uncertainty factors are applied to the Lowest Observed Adverse Effects Level or No Observed Adverse Effects Level or Benchmark Concentration values from animal or human studies to help ensure that the chronic and acute REL values are below the threshold for human health for nearly all individuals. Some substances that pose a chronic inhalation hazard may also present a chronic hazard via non-inhalation routes of exposure (e.g., ingestion of contaminated water, foods, or soils, and dermal absorption). The methodology and derivations for acute and chronic RELs are described in OEHHA's Guidelines: Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants and Part III, Technical Support Document for the Determination of Chronic Reference Exposure Levels.

6.2 Model Selection

The Hotspots Analysis Reporting Program (HARP), version 1.4b, is the modeling and health risk analysis tool that was used for this analysis. HARP was developed by the California Air Resources Board (CARB) to assist companies in the preparation of HRAs. The program incorporates emission calculations, air dispersion modeling, and health risk assessment calculations into one program. The use of HARP standardizes the dispersion model and risk assessment calculations used for the preparations of HRAs.

6.3 Modeling Options

The model was performed following "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments" (OEHHA, August 2003) and "Supplement Guidelines for Preparing Risk Assessment for the Air Toxics 'Hot Spots' Information and Assessment Act (AB2588)" (SCAQMD, July 2005).

Since there is a potential for residences in the area to raise homegrown produce, the homegrown produce pathway was included. In accordance with SCAQMD guidance, it is assumed that 5.2 percent of fruits and vegetables consumed by residences are homegrown. Dermal, mother's milk, and soil ingestion pathways were also included for the residential receptors.

For the worker receptors, dermal absorption and soil ingestion pathways were included in accordance with OEHHA Guidelines.

All the regulatory default parameters were used, except that "calms processing" was not utilized, as shown in the list of modeling parameters in Table 14.

Table 144. Air Dispersion Modeling Parameters

Parameter	Value
Model control options	
Use regulatory default?	No
Urban or Rural?	Urban
Gradual plume rise?	No
Stack tip downwash?	Yes
Buoyancy induced dispersion?	Yes
Calms processing?	No
Missing data processing?	No
Source Options	
Include building downwash?	Yes
Lowbound option?	No

6.4 Source Parameters

The modeling parameters for the turbine were the same as for the AERMOD modeling described earlier.

6.5 Meteorological Data

Since the HARP model incorporates the ISCST3 air dispersion model, and not AERMOD, a different set of meteorological input data had to be used.

The meteorological data set used for this analysis was obtained from the SCAQMD. This data set is based on meteorological data collected at the Lennox station for 1981 and covers twelve (12) months of continuous data. The Lennox data set was chosen because the station is closest and represents the most appropriate meteorological conditions at HTP.

6.6 Receptors

A grid of receptors was placed at 100 meter spacing extending 2.0 km west, 2.0 km east, 1.5 km north, and 1.5 km south of the facility. Receptors were also placed along the fence line at 100 meter spacing. For the carcinogenic health risk, the grid receptors are used to determine the locations of the Point of Maximum Impact (PMI), Maximum

Exposed Individual Worker (MEIW), and Maximum Exposed Individual Resident (MEIR). For noncarcinogenic health risk, grid receptors were identified for the maximum Chronic Hazard Index – Residential (HIC-R) and Worker (HIC-W). The maximum Acute Hazard Risk (HIA) was determined at the fence line at a boundary receptor.

6.7 Results

The results of the recently updated HRA report for HTP identified the current baseline health risk impacts from the facility as summarized in Table 15.

Table 155. HTP Baseline Health Risk Impacts

Receptor	Receptor No.	Baseline Health Risk Impacts
Point of Maximum Impact (PMI) Cancer Risk	1289	9.03 in a million
Maximum Exposed Individual Resident (MEIR) Cancer Risk	598	5.35 in a million
Maximum Exposed Individual Worker (MEIW) Cancer Risk	799	0.984 in a million
Chronic Hazard Index – Residential (HIC-R)	516	0.107
Chronic Hazard Index – Worker (HIC-W)	551	0.165
Acute Hazard Index (HIA)	1287	0.638

In the baseline HRA document, the PMI is at Receptor 1289, which is located at the eastern fence line of the facility. This is not a residential location. The MEIR is at Receptor 598, which is located just east of the PMI location. This receptor has the highest risk nearest to the residences east of the facility. The MEIW is at Receptor 799, which is located on the west side of Vista Del Mar within Dockweiler Beach State Park. See Figure 1 for the map of the area and locations of impacts. The HIC-R is at Receptor 516 which is located north of the PMI location east of the facility; the HIC-W is at Receptor 551 located at the parking lot west of the facility along the Dockweiler Beach State Park near the northwest portion of the facility fence line. The HIA is at Receptor 1287 located at the eastern fence line, just north of the PMI location.

The revised modeling and risk assessment that includes the new sources for this project show that the maximum health risk impacts from the baseline plus project occur at the same receptor locations identified in the baseline HRA report.

The total facility health risk impacts and the incremental health risk impacts for both operating scenarios are listed in Tables 16 and 17. The locations of maximum health risk impact for the new project are the same as the baseline.

Table 166. Scenario 1 - Total and Incremental Project Health Risk Impacts

Receptor	Rec. No.	Baseline + Project Health Risk Impacts	Incremental Project Health Risk Impact
PMI	1289	9.05 in a million	0.02 in a million
MEIR	598	5.37 in a million	0.02 in a million
MEIW	799	0.985 in a million	0.001 in a million
HIC-R	516	0.111	0.004
HIC-W	551	0.166	0.001
HIA	1287	0.651	0.013

Table 177. Scenario 2 - Total and Incremental Project Health Risk Impacts

Receptor	Rec. No.	Baseline + Project Health Risk Impacts	Incremental Project Health Risk Impact
PMI	1289	9.05 in a million	0.02 in a million
MEIR	598	5.37 in a million	0.02 in a million
MEIW	799	0.986 in a million	0.002 in a million
HIC-R	516	0.112	0.005
HIC-W	551	0.166	0.001
HIA	1287	0.650	0.012

Figure 2 shows an aerial photo indicating the location of the PMI, MEIR, HIC-R, and HIA for Scenario 2, which is a slightly worse case than Scenario 1. Figure 2 also shows the cancer risk isopleths using the residential risk profile. Figure 3 shows an aerial photo indicating the location of the MEIW, and HIC-W, and the cancer risk isopleths using the worker risk profile. In both figures, the cancer risk isopleths represent the area where the cancer risk generated from the facility TAC emissions is equal or greater than the isopleth value (e.g. the 5 in one million cancer risk isopleth in Figure 2 represents the area within which the cancer risk is 5 in one million or greater.) Note that the MEIR, with a cancer risk of 5.37 in one million, lies just within the 5 in one million isopleth.

The SCAQMD rule for evaluating the health risk impacts of new or modified projects is Rule 1401. This rule sets thresholds for the allowable increase in cancer risk, chronic risk, and acute risk. Health risk impacts must be analyzed at the nearest residence and nearest offsite worker. The results for both scenarios were similar. Our analysis shows that the incremental cancer risk was 0.02 in one million for the nearest residence, which is below the threshold of 1 in one million; the offsite worker cancer risk was even lower (0.002 in one million). The maximum increase in chronic health risk at the nearest residence was 0.005, which is well below the threshold of 1.0; the offsite worker chronic risk was even lower (0.001). The increase in acute risk was determined at the fence line and was calculated to be 0.013, which is below the threshold of 1.0. These results show that the requirements of Rule 1401 are satisfied for the proposed equipment.

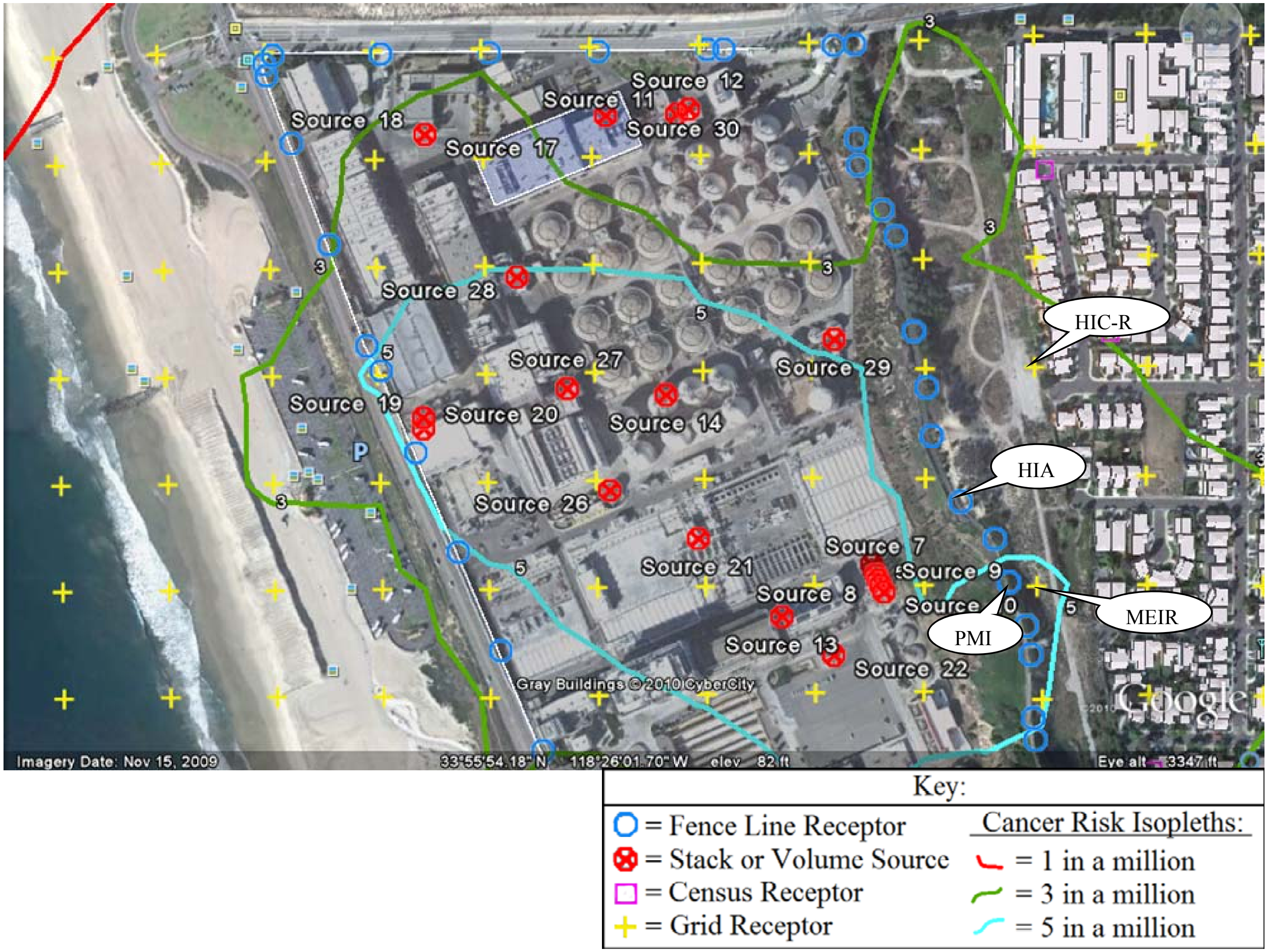

Figure 2. Locations of PMI, MEIR, HIC-R, HIA – Scenario 2; Cancer Risk Isopleths using Residential Risk Profile

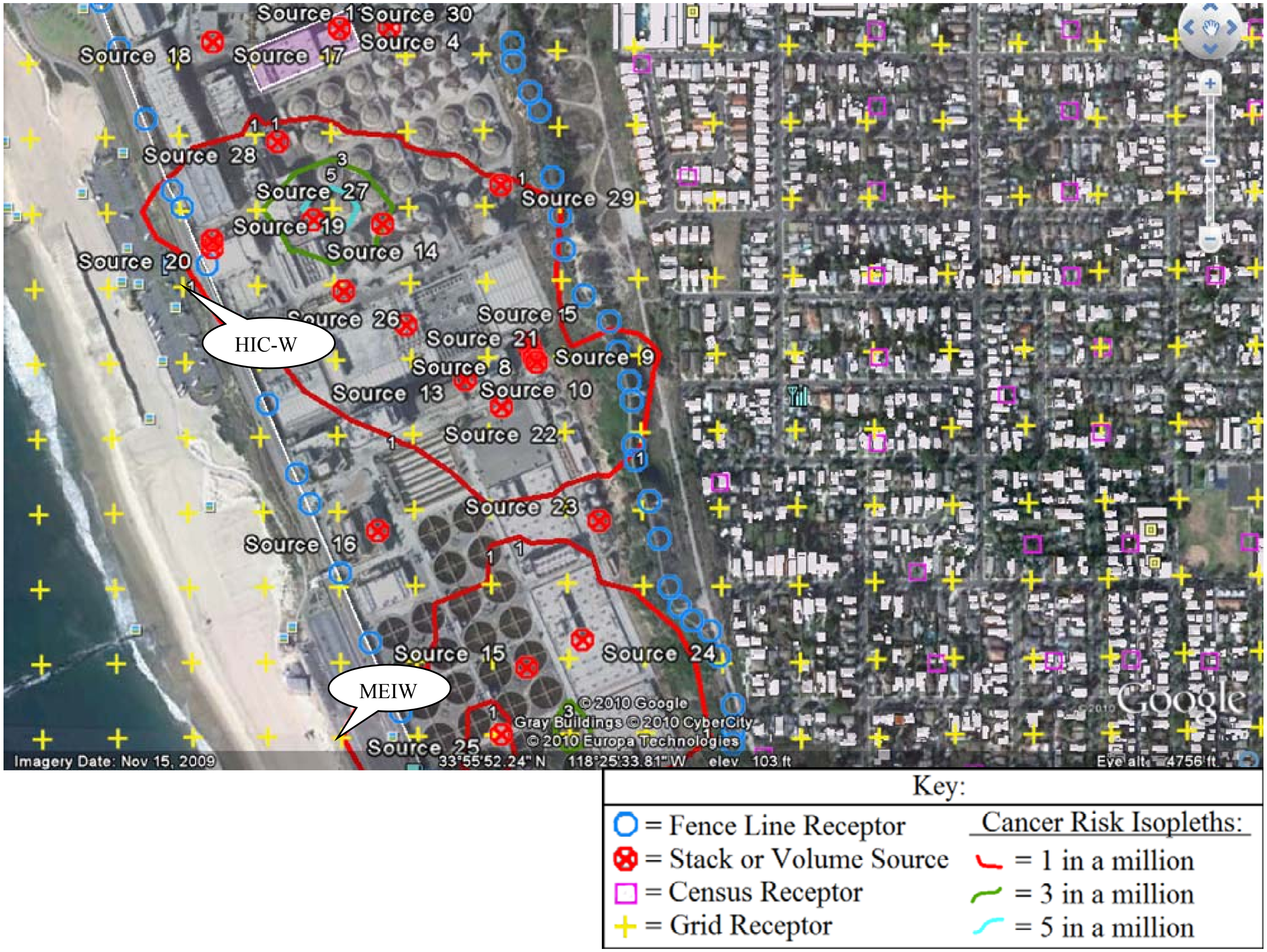

Figure 3. Locations of MEIW and HIC-W – Scenario 2; Cancer Risk Isopleths using Worker Risk Profile

7.0 CONCLUSION

Yorke Engineering conducted a study on the impacts to air quality associated with the DGUP, Co- Generation Facility which will be constructed within the existing Hyperion Treatment Plant. The study included a dispersion modeling analysis using AERMOD to determine compliance with the New Source Review modeling requirement. The study also included a health risk analysis using HARP to evaluate compliance with New Source Review of Toxic Air Contaminants under Rule 1401. The study concludes that the proposed DGUP Co-Generation facility will comply with these air quality requirements.

The dispersion modeling analysis determines whether the addition of a new source of air pollutants will increase the air pollution levels in the surrounding area such that the pollutant concentrations are higher than the ambient air quality standards set by the EPA and CARB. For most pollutants, the ambient air in the vicinity of HTP is cleaner than the ambient air standards. However, for particulate matter less than 10 microns (PM_{10}), the ambient air does not yet meet the standard; i.e. there have been instances in the past three years when the measured PM_{10} levels violated the ambient air standards. Our dispersion modeling analysis calculated the increase in the concentration of each of the criteria air pollutants and added them to the existing pollution levels and found that there will be no violations of the ambient air standards. For PM_{10}, we satisfied the dispersion modeling requirement by demonstrating that the increase in PM_{10} will not cause a "significant change" in PM_{10} levels in an area that currently does not meet the ambient air standards. Since the results are satisfactory for Scenario 2, they will also be satisfactory for Scenario 1 since Scenario 2 is a slightly worse case than Scenario 1. In summary, the dispersion modeling analysis shows that the proposed project meets the modeling requirements.

A Health Risk Assessment (HRA) is required for any new sources that cause an increase in emissions of toxic air contaminants (TAC). SCAQMD Rule 1401 specifies the allowable increases in cancer risk, chronic health risk, and acute risk at the nearest offsite locations. Health risk impacts must be analyzed at the nearest residence and nearest offsite worker. The results for both Scenario 1 and Scenario 2 were similar.

Figure 2 shows an aerial photo indicating the location of the PMI, MEIR, HIC-R, and HIA for Scenario 2, which is a slightly worse case than Scenario 1. Figure 2 also shows the cancer risk isopleths using the residential risk profile. Figure 3 shows an aerial photo indicating the location of the MEIW, and HIC-W, and the cancer risk isopleths using the worker risk profile. In both figures, the cancer risk isopleths represent the area where the cancer risk generated from the facility TAC emissions is equal or greater than the isopleth value (e.g. the 5 in a million cancer risk isopleths in Figure 2 represents the area within which the cancer risk is 5 in one million or greater.) Note that the MEIR, with a cancer risk of 5.37 in one million, lies just within the 5 in one million isopleth.

Our analysis shows that the incremental cancer risk was 0.02 in one million for the nearest residence, which is below the threshold of 1 in one million; the offsite worker cancer risk was even lower (0.002 in one million). The maximum increase in chronic health risk at the nearest residence was 0.005, which is well below the threshold of 1.0; the offsite worker chronic risk was even lower (0.001). The increase in acute risk was determined at the fence line and was calculated to be 0.013, which is below the threshold of 1.0. In summary, the HRA shows that the increases in all health risk indices are below the limits set by Rule 1401. Thus, the proposed project satisfies the requirements for new source review of toxic air contaminants.

Appendix A – Detailed Emission Calculations

Los Angeles Department of Public Works (LADPW) Bureau Of Sanitation (BOS)
Hyperion Treatment Plant (HTP)
Digester Gas Utilization Project (DGUP)
Emissions and Modeling Summary
Alternative 1 - Co-Generation Facility, Solar Mars 100 Turbines - Scenario 1, 60% Digester Gas / 40% Natural Gas

Provided Data:

Total DG Available	9.6	MMscf/d	Given
Total DG Available	0.4	MMscf/hr	Given
DG Fuel Heat Rating (LHV)	565	btu/scf	Calculated as HHV/1.108
DG Fuel Heat Rating (HHV)	626	btu/scf	Given
NG Fuel Heat Rating (LHV)	942	btu/scf	Calculated as HHV/1.115
NG Fuel Heat Rating (HHV)	1050	btu/scf	Given

Turbine Stack Parameters - Scenario 1

Emission Rate g/s	Stack Hgt ft	Stack Temp F	Exhaust dscfm	Exhaust dacfm	Stack Diam ft	Exhaust m3/s	Stack area m2
1	126.5	210	63343.87987	81616.15	10	38.52	7.30

Emission Rate g/s	Stack Hgt. m	Stack Temp. K	Exhaust m/s	Stack Diam. m
1	38.5572	372.0388889	5.2790	3.048

UTM System	UTM-X	UTM-Y
NAD83	367713.8	3755337.26

1 Stack parameters based on maximum turbine heat rating of 123.18 MMBtu/hr.
2 Exhaust (dscfm) = Heat Rating (MMBtu/hr) / 60 (min/hr) * 8710 (dscf/MMBtu) * 20.9/(20.9 - 15)
3 Exhaust Corrected (dacfm) = Exhaust (dscfm) x (460 + Temp)/(460 + 60)

Scenario 1 - 60% Digester Gas / 40% Natural Gas

	Per Turbine		Total 3 Turbines	
Heat Input (LHV)	110.91	MMBtu/hr	332.73	MMBtu/hr
Heat Input (HHV)	123.1809	MMBtu/hr	369.5427926	MMBtu/hr
Digester Gas Heating Value (LHV)	66.546	MMBtu/hr	199.638	MMBtu/hr
Digester Gas Heating Value (HHV)	73.7306	MMBtu/hr	221.1918372	MMBtu/hr
Digester Gas Fuel Flow	0.1178	MMscf/hr	0.3533	MMscf/hr
Natural Gas Heating Value (LHV)	44.364	MMBtu/hr	133.0920	MMBtu/hr
Natural Gas Heating Value (HHV)	49.4503	MMBtu/hr	148.3510	MMBtu/hr
Natural Gas Fuel Flow	0.0471	MMscf/hr	0.1413	MMscf/hr
Total Maximum Fuel Flow	0.1649	MMscf/hr	0.4946	MMscf/hr

Uncontrolled Criteria Pollutant Emissions per CTG - Scenario 1: 60% Digester Gas / 40% Natural Gas

Pollutant	Emission Factor	units	lbs/hr	lbs/day	lbs/year	tons/year
NOx	60	ppm	27.68	664.26	242,454	121.23
CO	200	ppm	56.16	1347.77	491,936	245.97
VOC	100	ppm	16.04	385.08	140,553	70.28
PM10	0.012 / 0.0066	lbs/MMBtu	1.21	29.07	10,610	5.30
SOx	20 / 15	ppm	0.52	12.41	4,530	2.26
NH3	3.2	lbs/MMscf	0.53	12.66	4,622	2.31
CO2 as Combustion Product			13,836	332,062	121,202,635	***54,978 MT/yr***
CO2 as Pass-through from Fuel			5,032	120,765	44,079,388	***19,994 MT/yr***

Controlled Criteria Pollutant Emissions per CTG - Scenario 1: 60% Digester Gas / 40% Natural Gas

Pollutant	Emission Factor	units	lbs/hr	lbs/day	lbs/year	tons/year
NOx	25	ppm	11.53	276.78	101,023	50.51
CO	60	ppm	16.85	404.33	147,581	73.79
VOC	25	ppm	4.01	96.27	35,138	17.57
PM10	0.012 / 0.0066	lbs/MMBtu	1.21	29.07	10,610	5.30
SOx	20/15	ppm	0.52	12.41	4,530	2.26
NH3	5	ppm	0.85	20.46	7,467	3.73
CO2 as Combustion Product			13,836	332,062	121,202,635	***54,978 MT/yr***
CO2 as Pass-through from Fuel			5,032	120,765	44,079,388	***19,994 MT/yr***

Criteria Pollutant Emissions per CTG - Scenario 1: 60% Digester Gas / 40% Natural Gas (1 turbine)								
Pollutant	**AHU (lb/hr)**	**AHC (lb/hr)**	**MHU (lb/hr)**	**MHC (lb/hr)**	**MDU (lb/day)**	**MDC (lb/day)**	**AA (lb/year)**	**30DA (lb/day)**
NOx	27.68	11.53	27.68	11.53	664.26	276.78	101,023	276.78
CO	56.16	16.85	56.16	16.85	1,347.77	404.33	147,581	404.33
VOC	16.04	4.01	16.04	4.01	385.08	96.27	35,138	96.27
PM10	1.21	1.21	1.21	1.21	29.07	29.07	10,610	29.07
SOx	0.52	0.52	0.52	0.52	12.41	12.41	4,530	12.41
CO2 Combustion	13,836	13,836	13,836	13,836	332,062	332,062	121,202,635	332,062
CO2 Pass-through	5,032	5,032	5,032	5,032	120,765	120,765	44,079,388	120,765

Criteria Pollutant Emissions for 3 CTGs - Scenario 1: 60% Digester Gas / 40% Natural Gas (3 turbines)								
Pollutant	**AHU (lb/hr)**	**AHC (lb/hr)**	**MHU (lb/hr)**	**MHC (lb/hr)**	**MDU (lb/day)**	**MDC (lb/day)**	**AA (lb/year)**	**30DA (lb/day)**
NOx	83.03	34.60	83.03	34.60	1,992.77	830.33	303,069	830.33
CO	168.47	50.54	168.47	50.54	4,043.31	1,212.99	442,742	1,212.99
VOC	48.13	12.03	48.13	12.03	1,155.23	288.81	105,414	288.81
PM10	3.63	3.63	3.63	3.63	87.20	87.20	31,829	87.20
SOx	1.55	1.55	1.55	1.55	37.23	37.23	13,589	37.23
CO2 Combustion	41,508	41,508	41,508	41,508	996,186	996,186	363,607,904	996,186
CO2 Pass-through	15,096	15,096	15,096	15,096	362,296	362,296	132,238,164	362,296

TAC Emissions per CTG - Scenario 1: 60% Digester Gas / 40% Natural Gas (1 turbine)								
Pollutant	**CAS**	**Uncontrolled EF (lbs/MMscf)**		**Controlled Emissions (lbs/hr)**		**Controlled Emissions - 1 Turbine**		
		DG	**NG**	**DG**	**NG**	**(lbs/hr)**	**(lbs/year)**	**(tons/year)**
1,3 Butadiene	106990	5.880E-03	4.390E-04	1.593E-05	4.755E-07	1.640E-05	1.437E-01	7.185E-05
1,4 Dichlorobenzene	106467	1.200E-02	0.000E+00	3.251E-05	0.000E+00	3.251E-05	2.848E-01	1.424E-04
Acetaldehyde	75070	3.180E-02	4.080E-02	8.614E-05	4.419E-05	1.303E-04	1.142E+00	5.709E-04
Acrolein	107028	0.000E+00	6.530E-03	0.000E+00	7.073E-06	7.073E-06	6.196E-02	3.098E-05
Ammonia	7664417	N/A	N/A	N/A	N/A	8.524E-01	7.467E+03	3.734E+00
Arsenic	7440382	1.380E-03	0.000E+00	3.738E-06	0.000E+00	3.738E-06	3.275E-02	1.637E-05
Benzene	71432	0.000E+00	1.220E-02	0.000E+00	1.322E-05	1.322E-05	1.158E-01	5.788E-05
Cadmium	7440439	3.480E-04	0.000E+00	9.427E-07	0.000E+00	9.427E-07	8.258E-03	4.129E-06
Carbon tetrachloride	56235	1.200E-02	0.000E+00	3.251E-05	0.000E+00	3.251E-05	2.848E-01	1.424E-04
Chloroform	67663	1.020E-02	0.000E+00	2.763E-05	0.000E+00	2.763E-05	2.421E-01	1.210E-04
Ethylbenzene	100414	0.000E+00	3.260E-02	0.000E+00	3.531E-05	3.531E-05	3.093E-01	1.547E-04
Ethylene dichloride	107062	9.000E-03	0.000E+00	2.438E-05	0.000E+00	2.438E-05	2.136E-01	1.068E-04
Formaldehyde	50000	1.140E-01	7.240E-01	3.088E-04	7.842E-04	1.093E-03	9.575E+00	4.788E-03
Lead	7439921	2.040E-03	0.000E+00	5.526E-06	0.000E+00	5.526E-06	4.841E-02	2.421E-05
Methylene chloride	75092	7.800E-03	0.000E+00	2.113E-05	0.000E+00	2.113E-05	1.851E-01	9.255E-05
Naphthalene	91203	0.000E+00	1.330E-03	0.000E+00	1.441E-06	1.441E-06	1.262E-02	6.310E-06
Nickel	7440020	1.200E-03	0.000E+00	3.251E-06	0.000E+00	3.251E-06	2.848E-02	1.424E-05
PAHs	1151	0.000E+00	9.180E-04	0.000E+00	9.944E-07	9.944E-07	8.711E-03	4.355E-06
Perchloroethylene	127184	1.260E-02	0.000E+00	3.413E-05	0.000E+00	3.413E-05	2.990E-01	1.495E-04
Propylene oxide	75569	0.000E+00	2.960E-02	0.000E+00	3.206E-05	3.206E-05	2.809E-01	1.404E-04
Selenium	7782492	6.600E-03	0.000E+00	1.788E-05	0.000E+00	1.788E-05	1.566E-01	7.831E-05
Toluene	108883	0.000E+00	1.330E-01	0.000E+00	1.441E-04	1.441E-04	1.262E+00	6.310E-04
Trichloroethylene	79016	1.080E-02	0.000E+00	2.926E-05	0.000E+00	2.926E-05	2.563E-01	1.281E-04
Vinyl chloride	75014	2.160E-02	0.000E+00	5.851E-05	0.000E+00	5.851E-05	5.126E-01	2.563E-04
Xylene	1330207	0.000E+00	6.530E-02	0.000E+00	7.073E-05	7.073E-05	6.196E-01	3.098E-04
Total TAC						**0.8542**	**7483.11**	**3.74**
Total HAP						**0.0018**	**16.08**	**0.01**

1 Controlled NOx based on expected BACT as long as DG is 60% of total fuel. Uncontrolled NOx emissions based on Solar information.
2 Controlled CO based on expected BACT as long as DG is 60% of total fuel. Uncontrolled CO emissions based on Solar information.
3 Controlled VOC based on expected BACT as long as DG is 60% of total fuel. Uncontrolled VOC emissions based on BACT for non-Major source.
4 PM10 for Digester Gas based on AP-42 Table 3.1-2b. PM10 for natural gas based on AP-42 Total PM in Table 3.1-2a. PM10 assumed to be 100% of Total PM.
5 Sulfur content of digester gas is 20 ppm as expected from H2S treatment system. Sulfur content for natural gas is 15 ppm as limited by Rule 431.1.
6 lbs/hr = 30854 (dscf/MMBtu) x Heat input (MMBtu/hr) x ppm / 1,000,000 x MW (lb/lb-mol) / 379 (scf/lb-mol)
7 F-Factor based on EPA Method 19 corrected to 15% oxygen. 8710 dscf/MMBTU x 20.9/(20.9 - 15) = 30854
8 CO2 Combustion emissions = Fuel flow (MMscf) x 10^6 x (CH4 (% vol) / 100) / 379 (scf/lb-mol) x 44 (lb/lb-mol). DG has 62% CH4 and NG has 98% CH4.
9 CO2 Pass-through emissions = Fuel flow (MMscf) x 10^6 x (CO2 (% vol) / 100) / 379 (scf/lb-mol) x 44 (lb/lb-mol). DG has 36% CO2 and NG has 2% CO2.
10 TAC Emission factors obtained from SCAQMD "Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory", January 2010, Tables B-1 (Natural Gas) and B-7 (Digester Gas). Uncontrolled Ammonia emissions assumes no SCR. With SCR, ammonia emissions will be 5 ppmv.
11 The use of an oxidation catalyst results in TAC emission reductions of 97.7 percent as accepted by SCAQMD.
12 HAP is hazardous air pollutant as defined by USEPA. Ammonia is not classified as a HAP.
13 Heat Rating (HHV) converted based on LHV of 110.91 MMBtu/hr as indicated by Solat Performance and based on digester gas HHV/LHV ratio of 1.108 and natural gas HHV/LHV ratio of 1.115.

Los Angeles Department of Public Works (LADPW) Bureau Of Sanitation (BOS)
Hyperion Treatment Plant (HTP)
Digester Gas Utilization Project (DGUP)
Emissions and Modeling Summary
Alternative 1 - Co Generation Facility, Solar Mars 100 Turbines - Scenario 2, 100% Digester Gas

Provided Data:

Total DG Available	9.6	MMscf/d	Given
Total DG Available	0.4	MMscf/hr	Given
DG Fuel Heat Rating (LHV)	565	btu/scf	Calculated as HHV/1.108
DG Fuel Heat Rating (HHV)	626	btu/scf	Given
NG Fuel Heat Rating (LHV)	942	btu/scf	Calculated as HHV/1.115
NG Fuel Heat Rating (HHV)	1050	btu/scf	Given

Turbine Stack Parameters - Scenario 2

Emission Rate g/s	Stack Hgt ft	Stack Temp F	Exhaust dscfm	Exhaust dacfm	Stack Diam ft	Exhaust m3/s	Stack area m2
1	126.5	210	63191.36982	81419.65	10	38.43	7.30

Emission Rate g/s	Stack Hgt. m	Stack Temp. K	Exhaust m/s	Stack Diam. m
1	38.5572	372.0388889	5.2663	3.048

UTM System	UTM-X	UTM-Y
NAD83	367713.8	3755337.26

1 Stack parameters based on maximum turbine heat rating of 122.88 MMBtu/hr.
2 Exhaust (dscfm) = Heat Rating (MMBtu/hr) / 60 (min/hr) * 8710 (dscf/MMBtu) * 20.9/(20.9 - 15)
3 Exhaust Corrected (dacfm) = Exhaust (dscfm) x (460 + Temp)/(460 + 60)

Scenario 2 - 100% Digester Gas

	Per Turbine		Total 3 Turbines	
Heat Input (LHV)	110.91	MMBtu/hr	332.73	MMBtu/hr
Heat Input (HHV)	122.8844	MMBtu/hr	368.6530619	MMBtu/hr
Digester Gas Heating Value (LHV)	110.91	MMBtu/hr	332.73	MMBtu/hr
Digester Gas Heating Value (HHV)	122.8844	MMBtu/hr	368.6530619	MMBtu/hr
Digester Gas Fuel Flow	0.1963	MMscf/hr	0.5889	MMscf/hr
Total Maximum Fuel Flow	0.1963	MMscf/hr	0.5889	MMscf/hr

Uncontrolled Criteria Pollutant Emissions per CTG - Scenario 2: 100% Digester Gas

Pollutant	factor	units	lbs/hr	lbs/day	lbs/year	tons/year
NOx	60	ppm	27.61	662.66	241,871	120.94
CO	200	ppm	56.02	1344.53	490,752	245.38
VOC	100	ppm	16.01	384.15	140,215	70.11
PM10	0.012	lbs/MMBtu	1.47	35.39	12,918	6.46
SOx	20	ppm	0.66	15.91	5,808	2.90
NH3	3.2	lbs/MMscf	0.63	15.08	5,503	2.75
CO2 as Combustion Product			14,130	339,108	123,774,597	***56,144 MT/yr***
CO2 as Pass-through from Fuel			8,204	196,902	71,869,121	***32,600 MT/yr***

Controlled Criteria Pollutant Emissions per CTG - Scenario 2: 100% Digester Gas

Pollutant	factor	units	lbs/hr	lbs/day	lbs/year	tons/year
NOX	25	ppm	11.50	276.11	100,779	50.39
CO	60	ppm	16.81	403.36	147,226	73.61
VOC	25	ppm	4.00	96.04	35,054	17.53
PM10	0.012	lbs/MMBtu	1.47	35.39	12,918	6.46
SOX	20	ppm	0.66	15.91	5,808	2.90
NH3	5	ppm	0.85	20.41	7,449	3.72
CO2 as Combustion Product			14,130	339,108	123,774,597	***56,144 MT/yr***
CO2 as Pass-through from Fuel			8,204	196,902	71,869,121	***32,600 MT/yr***

Criteria Pollutant Emissions per CTG - Scenario 2: 100% Digester Gas (1 turbine)								
Pollutant	AHU (lb/hr)	AHC (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	MDU (lb/day)	MDC (lb/day)	AA (lb/year)	30DA (lb/day)
NOx	27.61	11.50	27.61	11.50	662.66	276.11	100779	276.11
CO	56.02	16.81	56.02	16.81	1,344.53	403.36	147226	403.36
VOC	16.01	4.00	16.01	4.00	384.15	96.04	35054	96.04
PM10	1.47	1.47	1.47	1.47	35.39	35.39	12918	35.39
SOx	0.66	0.66	0.66	0.66	15.91	15.91	5808	15.91
CO2 Combustion	14,130	14,130	14,130	14,130	339,108	339,108	123774597	339,108
CO2 Pass-through	8,204	8,204	8,204	8,204	196,902	196,902	71869121	196,902

Criteria Pollutant Emissions for 3 CTGs - Scenario 2: 100% Digester Gas (3 turbines)								
Pollutant	AHU (lb/hr)	AHC (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	MDU (lb/day)	MDC (lb/day)	AA (lb/year)	30DA (lb/day)
NOx	82.83	34.51	82.83	34.51	1,987.98	828.32	302338	828.32
CO	168.07	50.42	168.07	50.42	4,033.58	1,210.08	441677	1,210.08
VOC	48.02	12.00	48.02	12.00	1,152.45	288.12	105162	288.12
PM10	4.42	4.42	4.42	4.42	106.17	106.17	38753	106.17
SOx	1.99	1.99	1.99	1.99	47.74	47.74	17424	47.74
CO2 Combustion	42,389	42,389	42,389	42,389	1,017,325	1,017,325	371323791	1,017,325
CO2 Pass-through	24,613	24,613	24,613	24,613	590,705	590,705	215607362	590,705

TAC Emissions - 100% Digester Gas (1 turbine)					
Pollutant	CAS	Uncontrolled EF	Controlled Emissions - 1 Turbine		
		DG EF	(lbs/hr)	(lbs/year)	(tons/year)
1,3 Butadiene	106990	5.880E-03	2.655E-05	2.326E-01	1.163E-04
1,4 Dichlorobenzene	106467	1.200E-02	5.418E-05	4.746E-01	2.373E-04
Acetaldehyde	75070	3.180E-02	1.436E-04	1.258E+00	6.289E-04
Acrolein	107028	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ammonia	7664417	N/A	6.282E-01	5.503E+03	2.751E+00
Arsenic	7440382	1.380E-03	6.231E-06	5.458E-02	2.729E-05
Benzene	71432	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cadmium	7440439	3.480E-04	1.571E-06	1.376E-02	6.882E-06
Carbon tetrachloride	56235	1.200E-02	5.418E-05	4.746E-01	2.373E-04
Chloroform	67663	1.020E-02	4.605E-05	4.034E-01	2.017E-04
Ethylbenzene	100414	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ethylene dichloride	107062	9.000E-03	4.063E-05	3.560E-01	1.780E-04
Formaldehyde	50000	1.140E-01	5.147E-04	4.509E+00	2.254E-03
Lead	7439921	2.040E-03	9.210E-06	8.068E-02	4.034E-05
Methylene chloride	75092	7.800E-03	3.522E-05	3.085E-01	1.542E-04
Naphthalene	91203	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Nickel	7440020	1.200E-03	5.418E-06	4.746E-02	2.373E-05
PAHs	1151	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Perchloroethylene	127184	1.260E-02	5.689E-05	4.983E-01	2.492E-04
Propylene oxide	75569	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Selenium	7782492	6.600E-03	2.980E-05	2.610E-01	1.305E-04
Toluene	108883	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Trichloroethylene	79016	1.080E-02	4.876E-05	4.271E-01	2.136E-04
Vinyl chloride	75014	2.160E-02	9.752E-05	8.543E-01	4.271E-04
Xylene	1330207	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total TAC			**0.6293**	**5512.96**	**2.76**
Total HAP			**0.0012**	**10.25**	**0.01**

1 Controlled NOx based on expected BACT as long as DG is 60% of total fuel. Uncontrolled NOx emissions based on Solar information.
2 Controlled CO based on expected BACT as long as DG is 60% of total fuel. Uncontrolled CO emissions based on Solar information.
3 Controlled VOC based on expected BACT as long as DG is 60% of total fuel. Uncontrolled VOC emissions based on BACT for non-Major source.
4 PM10 for Digester Gas based on AP-42 Table 3.1-2b. PM10 for natural gas based on AP-42 Total PM in Table 3.1-2a. PM10 assumed to be 50% of Total PM.
5 Sulfur content of digester gas is 20 ppm as expected from H2S treatment system. Sulfur content for natural gas is 15 ppm as limited by Rule 431.1.
6 lbs/hr = 30854 (dscf/MMBtu) x Heat input (MMBtu/hr) x ppm / 1,000,000 x MW (lb/lb-mol) / 379 (scf/lb-mol)
7 F-Factor based on EPA Method 19 corrected to 15% oxygen. 8710 dscf/MMBTU x 20.9/(20.9 - 15) = 30854
8 CO2 Combustion emissions = Fuel flow (MMscf) x 10^6 x (CH4 (% vol) / 100) / 379 (scf/lb-mol) x 44 (lb/lb-mol). DG has 62% CH4 and NG has 98% CH4.
9 CO2 Pass-through emissions = Fuel flow (MMscf) x 10^6 x (CO2 (% vol) / 100) / 379 (scf/lb-mol) x 44 (lb/lb-mol). DG has 36% CO2 and NG has 2% CO2.
10 TAC Emission factors obtained from SCAQMD "Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory", January 2010, Tables B-1 (Natural Gas) and B-7 (Digester Gas). Uncontrolled Ammonia emissions assumes no SCR. With SCR, ammonia emissions will be 5 ppmv.
11 The use of an oxidation catalyst results in TAC emission reductions of 97.7 percent as accepted by SCAQMD.
12 HAP is hazardous air pollutant as defined by USEPA. Ammonia is not classified as a HAP.
13 Heat Rating (HHV) converted based on LHV of 110.91 MMBtu/hr as indicated by Solat Performance and based on digester gas HHV/LHV ratio of 1.108.

Appendix B – Dispersion Modeling Details

DGUP - Alternative 1 - Scenario 1
Criteria Pollutant Emissions
AERMOD Air Dispersion Modeling

Historical Ambient Air Concentration Levels

	NO2 (ppm)		CO (ppm)		PM10 (ug/m3)		SO2 (ppm)	
	1-hr	Annual	1-hr	8-hr	24-hr	Annual	1-hr	24-hr
2006	0.1	0.0155	3	2.3	45	26.5	0.02	0.006
2007	0.08	0.014	3	2.4	96	27.7	0.02	0.009
2008	0.09	0.0143	4	2.5	50	25.6	0.02	0.005
Max	0.1	0.0155	4	2.5	96	27.7	0.02	0.009
Max (ug/m3)	188.33333	29.45	4600	2777.7778	96	27.7	52.4	23.625

AERMOD Predicted X/Q (ug/m3) - Scenario 1

LAX	1-Hr	8-Hr	24-Hr	Annual
2005	14.65023	9.63709	3.96212	0.92172
2006	13.41329	5.23713	2.10366	0.87721
2007	16.58914	9.14521	3.84839	0.86129
Max	16.58914	9.63709	3.96212	0.92172

AERMOD Predicted GLC - Scenario 1 60% DG / 40% NG

	Emission	QS (g/s)	1-Hr	8-Hr	24-Hr	Annual
	lb/hr	1	16.58914	9.63709	3.96212	0.92172
NO2	11.5323	1.4530698	24.105	14.003	5.757	1.339
CO	16.8471	2.1227346	35.214	20.457	8.411	1.957
PM10	1.2111395	0.1526036	2.532	1.471	0.605	0.141
SOX	0.5171	0.0651546	1.081	0.628	0.258	0.060

AERMOD Modeling Results (ug/m3) - Scenario 1 60% DG / 40% NG

	NO2 (ppm)		CO (ppm)		PM10 (ug/m3)		SO2 (ppm)	
	1-hr	Annual	1-hr	8-hr	24-hr	Annual	1-hr	24-hr
AERMOD Predicted GLC	24.105	1.339	35.214	20.457	0.605	0.141	1.081	0.258
Air Quality Concentration	188	29	4600	2778	N/A	N/A	52	24
Total GLC	212	31	4635	2798	1	0	53	24
Ambient Air Quality	338	56	20000	9000	2.5	1	655	105
Compliant (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

DGUP - Alternative 1 - Scenario 2
Criteria Pollutant Emissions
AERMOD Air Dispersion Modeling

Historical Ambient Air Concentration Levels

	NO2 (ppm)		CO (ppm)		PM10 (ug/m3)		SO2 (ppm)	
	1-hr	Annual	1-hr	8-hr	24-hr	Annual	1-hr	24-hr
2006	0.1	0.0155	3	2.3	45	26.5	0.02	0.006
2007	0.08	0.014	3	2.4	96	27.7	0.02	0.009
2008	0.09	0.0143	4	2.5	50	25.6	0.02	0.005
Max	0.1	0.0155	4	2.5	96	27.7	0.02	0.009
Max (ug/m3)	188.33333	29.45	4600	2777.7778	96	27.7	52.4	23.625

AERMOD Predicted X/Q (ug/m3) - Scenario 2

LAX	1-Hr	8-Hr	24-Hr	Annual
2005	14.66901	9.6571	3.97214	0.92312
2006	13.43586	5.24564	2.10722	0.87867
2007	16.60423	9.15131	3.85355	0.86257
Max	16.60423	9.6571	3.97214	0.92312

AERMOD Predicted GLC - Scenario 2 100% DG

	Emission	QS (g/s)	1-Hr	8-Hr	24-Hr	Annual
	lb/hr	1	16.60423	9.6571	3.97214	0.92312
NO2	11.5045	1.449567	24.069	13.999	5.758	1.338
CO	16.8066	2.1176316	35.162	20.450	8.412	1.955
PM10	1.4746122	0.1858011	3.085	1.794	0.738	0.172
SOX	0.663	0.083538	1.387	0.807	0.332	0.077

AERMOD Modeling Results (ug/m3) - Scenario 2 100% DG

	NO2 (ppm)		CO (ppm)		PM10 (ug/m3)		SO2 (ppm)	
	1-hr	Annual	1-hr	8-hr	24-hr	Annual	1-hr	24-hr
AERMOD Predicted GLC	24.069	1.338	35.162	20.450	0.738	0.172	1.387	0.332
Air Quality Concentration	188	29	4600	2778	N/A	N/A	52	24
Total GLC	212	31	4635	2798	1	0	54	24
Ambient Air Quality	338	56	20000	9000	2.5	1	655	105
Compliant (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix C – Electronic Modeling Files (on CD)