INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Encina Wastewater Authority
Energy and Emissions Strategic Plan Projects

Encina Wastewater Authority
6200 Avenida Encinas
Carlsbad, CA 92011

May 2013

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List of Acronyms

ADT	Average Daily Traffic
AF	Alternative Fuel
ARB	California Air Resources Board
BMP	Best Management Practice
T-BACT	Best Available Control Technology for Toxics
CAAQS	California Ambient Air Quality Standards
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CY	Calendar year
dB	Decibel
EPA	U.S. Environmental Protection Agency
EEM	Energy efficiency measures

EWA	Encina Wastewater Authority
EWPCF	Encina Water Pollution Control Facility
FOG	Fats, oils, grease
GHG	Greenhouse Gases
I-5	Interstate 5
IS	Initial Study
hp	Horsepower
JPA	Joint Powers Authority
LOS	Level of Service
MGD	Million Gallons per Day
mmcft	million standard cubic feet
MND	Mitigated Negative Declaration
NAAQS	National Ambient Air Quality Standards
RAQS	Regional Air Quality Standards
SANDAG	San Diego Association of Governments
SDAPCD	San Diego County Air Pollution Control Board
SCAQMD	South Coast Air Quality Management District
SDG&E	San Diego Gas and Electric
VFD	Variable Frequency Drive

Section 1: Mitigated Negative Declaration

1. Project title:	Energy and Emissions Strategic Plan Projects (Energy Projects)
2. Lead agency name and address:	Encina Wastewater Authority 6200 Avenida Encinas, Carlsbad, CA 92011
3. Contact person and phone number:	Duane Larson Engineering Services Manager 760-268-8812
4. Project location:	Encina Water Pollution Control Facility (EWPCF) 6200 Avenida Encinas Carlsbad, CA 92011
5. Project sponsor name and address:	Encina Wastewater Authority 6200 Avenida Encinas Carlsbad, CA 92011
6. General plan designation:	Public Utilities (U) – City of Carlsbad
7. Zoning:	Public Utility Zone (PU) – City of Carlsbad

8. Description of project:

The project consists of implementation of the Energy and Emissions Strategic Plan (Energy Projects), and is intended to convert grease trap waste, food waste, and other digestible organic solids into energy for use at the Encina Water Pollution Control Facility (EWPCF). The project will allow the EWPCF to self-generate 95 percent of its electrical needs, and 50 percent of its gas fuel needs by year 2020. The location of the proposed project is the existing EWPCF, which is located at 6200 Avenida Encinas, Carlsbad, California, 92011 (See Figure 1-1). Section 2 provides additional background information and Section 3 provides project details.

9. Surrounding land uses and setting:

The EWPCF is located approximately 0.25 miles from the Pacific Ocean in the north San Diego County City of Carlsbad. The facility is located immediately west of Interstate 5, east of Avenida Encinas, and south of Palomar Airport Road. The EWPCF plant site includes approximately 25 acres which have been previously filled and graded. Nearby and adjacent land uses include the City of Carlsbad's Water Recycling Facility (operated by Encina Wastewater Authority [EWA]) and an adjoining vacant parcel owned by EWA to the south, Avenida Encinas and Amtrak/North County Transit District train track to the west, and an industrial/commercial complex that includes office buildings to the north (Figure 1-1).

10. Other public agencies whose approval is required:

Several EWPCF facilities are regulated by the San Diego County Air Pollution Control District (SDAPCD). Project implementation may require amendments to SDAPCD permits.

11. Public Review:

Copies of the Initial Study are available for public review at the EWA office, 6200 Avenida Encinas, Carlsbad, CA 92011. The public review period for the Initial Study closes 28 June 2013.

12. Mitigation Measures:

All mitigation measures identified in the Initial Study are prepared for adoption as conditions of the project and will be implemented through a mitigation monitoring and reporting program adopted with the Negative Declaration.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially significantly affected by this Project as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural & Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature	Date
Title	For

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Encina Wastewater Authority
Encina Energy Program Support

CEQA Mitigated Negative Declaration
Project Location

K/J #1187108
October 2012

Figure 1-1

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Section 2: Introduction

2.1 Introduction

This Mitigated Negative Declaration (MND) evaluates the potential environmental impacts associated with development of a waste to energy facility and associated energy management improvements at the EWPCF in Carlsbad, California. The proposed project, implementation of Energy Projects, is intended to convert grease trap waste, food waste, and other digestible organic solids into energy for use at the EWPCF. The project will allow the EWPCF to self-generate 95 percent of its electrical needs, and 50 percent of its gas fuel needs by year 2020. The project will also increase on-site electricity generation capacity using alternative fuel. This will decrease EWPCF operating costs.

The Lead Agency for the proposed project is the EWA. The EWA is a Joint Powers Authority (JPA) formed by the City of Carlsbad, City of Vista, City of Encinitas, Leucadia Wastewater District, Vallecitos Water District and Buena Sanitation District. EWA operates the EWPCF.

2.2 CEQA Process

This MND has been prepared in accordance with the California Environmental Quality Act (CEQA) (Ca. Pub. Res. Code Section 21000 et seq.) and State CEQA Guidelines (14 Cal Code of Regs. Section 15000 et seq.). This document evaluates potential project impacts and evaluates the potential for mitigation measures to lessen and avoid significant impacts. This MND will be distributed to public agencies and other interested parties for review. Comments on the MND should be submitted in writing prior to the end of the public review period. Prior to making a determination, EWA will consider the MND together with comments received during the public comment period. EWA will adopt the MND only if it finds, on the basis of the whole record, that there is no substantial evidence that the project will have a significant effect on the environment.

2.2.1 Public Review Process

In reviewing the MND, affected agencies and interested public should focus on the adequacy of the information provided in identifying environmental impacts of the proposed project, and on the design measures incorporated as part of the project that serve to avoid or mitigate those impacts.

A 30-day (calendar days) review and comment period of this MND will be established, in accordance with §15105(b) of the CEQA guidelines. Following the close of the public comment period, EWA will consider this MND, as well as comments provided by agencies and other interested parties in determining whether to approve the proposed project.

Written comments should be mailed by 5:00 pm, 28 June 2013 to the following contact:

Duane Larson
Engineering Services Manager
Encina Water Authority
6200 Avenida Encinas,
Carlsbad, CA 92011

2.3 Organization of this Initial Study/MND

This MND is comprised of five sections and technical appendices:

- **Section 1 – Mitigated Negative Declaration.** This section provides a summary of the project and EWA's determination pursuant to CEQA.

- **Section 2 – Introduction.** This section provides an introduction and summary of the CEQA process in relation to the project.

- **Section 3 – Project Description.** This section provides a discussion of the project location, a summary of the existing environmental conditions, and a detailed description of the proposed project.

- **Section 4 – Environmental Checklist.** This section contains the CEQA checklist form that provides an overview of the project's potential impacts, as well as detailed analyses of the anticipated project-related and cumulative environmental impacts. Mitigation measures have been identified to eliminate potential significant effects or reduce them to a level that is considered less than significant. This section also includes the mandatory findings of significance, as required by CEQA.

- **Section 5 – Mitigation Monitoring and Reporting Plan.** This section includes a program for reporting on or monitoring the changes which EWA has either required in the project or made a condition of approval to mitigate or avoid significant environmental effects, as required by CEQA §15074(d). Adoption of the monitoring and reporting plan by EWA must occur at the same time it considers adoption of the MND.

- **Section 6 – References.** This section identifies those references used in preparation of the MND.

- **Section 7 – List of Preparers.** This section lists report authors and reviewers, including staff from EWA, Kennedy/Jenks Consultants, and DHK Engineers.

- **Appendix A – Air Quality Technical Report.** This appendix provides the technical information used to analyze the effect of the project on air quality.

Section 3: Project Description

3.1 Project Summary

The proposed project includes upgrades to the existing components and processes of the EWPCF in order to increase energy efficiency and reduce the facility's reliance on energy purchases in order to reduce overall operating expenses. Increased energy efficiency will be achieved through the implementation of: (1) an Alternative Fuel (AF) Receiving and biogas production system; (2) upgrades to existing cogeneration engines to reduce emissions; (3) additional on-site biofueled electrical generation capacity; and (4) energy efficiency measures (EEM) providing electrical demand reduction through retrofits of existing constant speed electric motors with variable frequency drives (VFD).

3.1.1 Need for Proposed Project and Project Objectives

Wastewater treatment is an energy intensive enterprise and energy costs in southern California have increased in the last decade. In spite of EWA's 2003 Energy Management Strategic Plan, EWPCF energy management expenses have increased by over 200 percent to nearly $2.1 million per year despite marginally lower influent flows and solids loadings. Recent tariff charges threaten to push these costs even higher.

The Energy and Emissions Strategic Plan, dated April 2011 by Kennedy/Jenks Consultants, establishes EWA's strategy for the production, conservation, and use of three (3) distinct and operationally interrelated forms of energy utilized at the EWPCF: electricity; gas; and heat. A primary objective of the Energy and Emissions Strategic Plan is to provide EWA with a plan for achieving targeted energy self-generation goals of 95 percent of the total EWPCF electrical needs and 50 percent of the total EWPCF gas needs by the year 2020. These goals will be achieved through demand reduction and increased use of alternative energy.

The proposed project aims to implement the recommended alternative power technology identified in the Energy and Emissions Strategic Plan in order to achieve the targeted energy self-generation goals. The proposed project includes:

- enhancing EWPCF biogas production through implementation of a Alternative Fuel (AF) system,
- upgrades to the existing cogeneration engines to reduce emission rates allowing increased run times,
- installation of additional cogeneration engines, when needed, to utilize increasing biogas quantities, and
- EEM providing demand reduction through retrofitting existing constant speed electric motors with VFDs and other similar measures.

Increasing biogas production will provide a greater opportunity for production of electrical energy onsite and self-generation of fuel for the biosolids dryer. This can be achieved by

introducing a new source of organic solids delivered to the site by local hauling companies. The additional organics would be combined with wastewater derived organic solids for gas production. Grease trap waste, food waste, and other digestible organic solids can generate additional quantities of biogas that can be used to create electricity or provide fuel for the existing biosolids dryer.

Increased biogas production derived from wastewater flows is included in the project. The projected increase in wastewater flows and associated biogas production are based on flow and load projections that we developed for the EWPCF Phase V Expansion Preliminary Design. These projections were based on member agency projections and requests for capacity at EWPCF. The energy projects would not provide additional wastewater treatment or solids handling capacity.

3.1.2 Project Location

The location of the proposed project is the existing EWPCF, which is located at 6200 Avenida Encinas, Carlsbad, California, 92011. The EWPCF occupies a 25 acre parcel bordered by the Interstate 5 Highway (I-5) to the east, the City of Carlsbad's Water Recycling Facility (operated by EWA) and an adjoining vacant parcel owned by EWA to the south, Avenida Encinas and Amtrak/North County Transit District train track to the west, and an industrial/commercial complex that includes office buildings to the north (Figure 3-1). Beyond the train track, the Pacific Ocean is approximately one quarter mile to the west of the EWPCF site, with a mobile home park and the Carlsbad Seapointe Resort located halfway between the EWPCF and the ocean to the northwest and southwest, respectively. Further east, beyond I-5, is a residential development that primarily includes condominiums.

The proposed project will enhance and upgrade existing components of the EWPCF to meet project objectives. The footprint of the existing EWPCF will accommodate the proposed project, and all work will occur on previously developed and paved land within the existing EWPCF site (Figure 3-2). There will be no modifications to existing roadways as a result of the proposed project.

Existing Infrastructure

The EWPCF is a conventional activated sludge wastewater treatment plant with liquid capacity of 40.5 million gallons per day (MGD) and solids capacity of 43.3 MGD (EWPCF is currently treating 24 MGD). The highly treated effluent is either returned to the member agencies for recycling (currently up to 5.0 MGD) or is discharged to the Pacific Ocean through the Encina Ocean Outfall. Solid by-products are pelletized and sold as an alternative fuel or fertilizer.

EWA currently utilizes its digester gas (biogas) to produce electricity, in addition to heat, through a cogeneration system. Cogeneration has been used at EWPCF since 1983. For EWPCF, this source of electrical power allows EWA to avoid purchasing electricity at peak daily electricity demand and rates. Specifically:

- The EWPCF currently produces electricity using four (4) Caterpillar Model G3516, water cooled cogeneration engines. Due to air emissions permit restrictions and biogas production, engine run time is limited and thus EWPCF must also purchase electricity from SDG&E.

Encina Wastewater Authority
Encina Energy Program Support

CEQA Mitigated Negative Declaration
Project Location

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October 2012

Figure 3-1

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Biogas/Natural Gas Compressors and Equipment Photo

Northeastern Plant Area Photo

Digesters and Cogeneration Engines Building Photo

Solids Handling Systems Area Photo

Kennedy/Jenks Consultants

Encina Wastewater Authority
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CEQA Mitigated Negative Declaration
Existing EWPCF Site Conditions

K/J #1187108
April 2013

Figure 3-2

Legend:

EWPCF : Encina Water Pollution Control Facility

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- Each of these cogeneration engines can be fueled by biogas produced in the EWPCF anaerobic digesters or by natural gas purchased from a statewide natural gas JPA. At current biogas production rates all biogas is used in the cogeneration engines and a biosolids dryer is fueled by natural gas.
- Using various heat exchange technologies, cogeneration engine cooling water is used to heat the EWPCF's anaerobic digesters and cool the main plant switchgear room. Cogeneration engines that produce energy in the form of both electricity and heat are commonly referred to as "cogeneration" engines. EWPCF's cogeneration engine and heat exchange array is known as the EWPCF Cogeneration System.

3.1.3 Project Components

The proposed project includes the following components and upgrades:

- Implementation of an Alternative Fuel system, which involves adding grease trap waste and/or other organic waste streams, such as food waste, to the digesters to increase the production of biogas. Grease trap waste is referred to as fats, oils, and grease (FOG). Implementing Alternative Fuel increases biogas production that could be utilized by either the cogeneration engines (thereby increasing self-generation of electricity) or the biosolids dryer (thereby reducing the amount of electricity and natural gas currently being purchased). Implementation of the Alternative Fuel system requires the construction of a waste receiving station, which will be designed to accept FOG trucked in by private companies specializing in FOG collection and recycling. There are five potential locations for the waste receiving station, all located within the north and northeast portion of the EWPCF site (see Figure 3-3 for site layout and proposed receiving station locations). All new facilities would be installed in areas that are already graded and paved. Alternative Fuel deliveries will be limited to the volume that produces biogas quantities that can be utilized in the biosolids dryer and cogenerations engines. Excess Alternative Fuel delivery volumes that would result in the need to flare biogas will not be accepted by EWA.
- Installation of a Gas Conditioning System, which would remove sulfur and siloxane compounds from the biogas produced in existing digesters to the extent needed to allow use of catalysts on the cogeneration engine exhaust system. There are four potential locations for the Gas Conditioning System (see Figure 3-4 for site layout and proposed Gas Conditioning System locations. All new infrastructure would be installed in areas that are already graded and paved (Figure 3-2).
- Installation of cogeneration engine exhaust system catalysts to ensure emission rates of five constituents regulated by the SDAPCD (carbon monoxide, nitrogen oxides, volatile organic compounds, sulfur oxides and particulates) are within permit limits. Emissions of carbon monoxide, volatile organic compounds and sulfur oxides will be reduced with the installation of exhaust system catalyst (see Figure 3-5 for the location of the catalyst. The catalyst would be installed in the existing catalyst housing). The reduction will allow EWA to operate the engines for longer periods of time than currently permitted.

- Expand the existing cogeneration engine system by adding a 5th engine equipped with exhaust catalysts (see Figure 3-5 for the location of the 5th engine. The engine would be installed in the open bay at the south end of the existing engine building).

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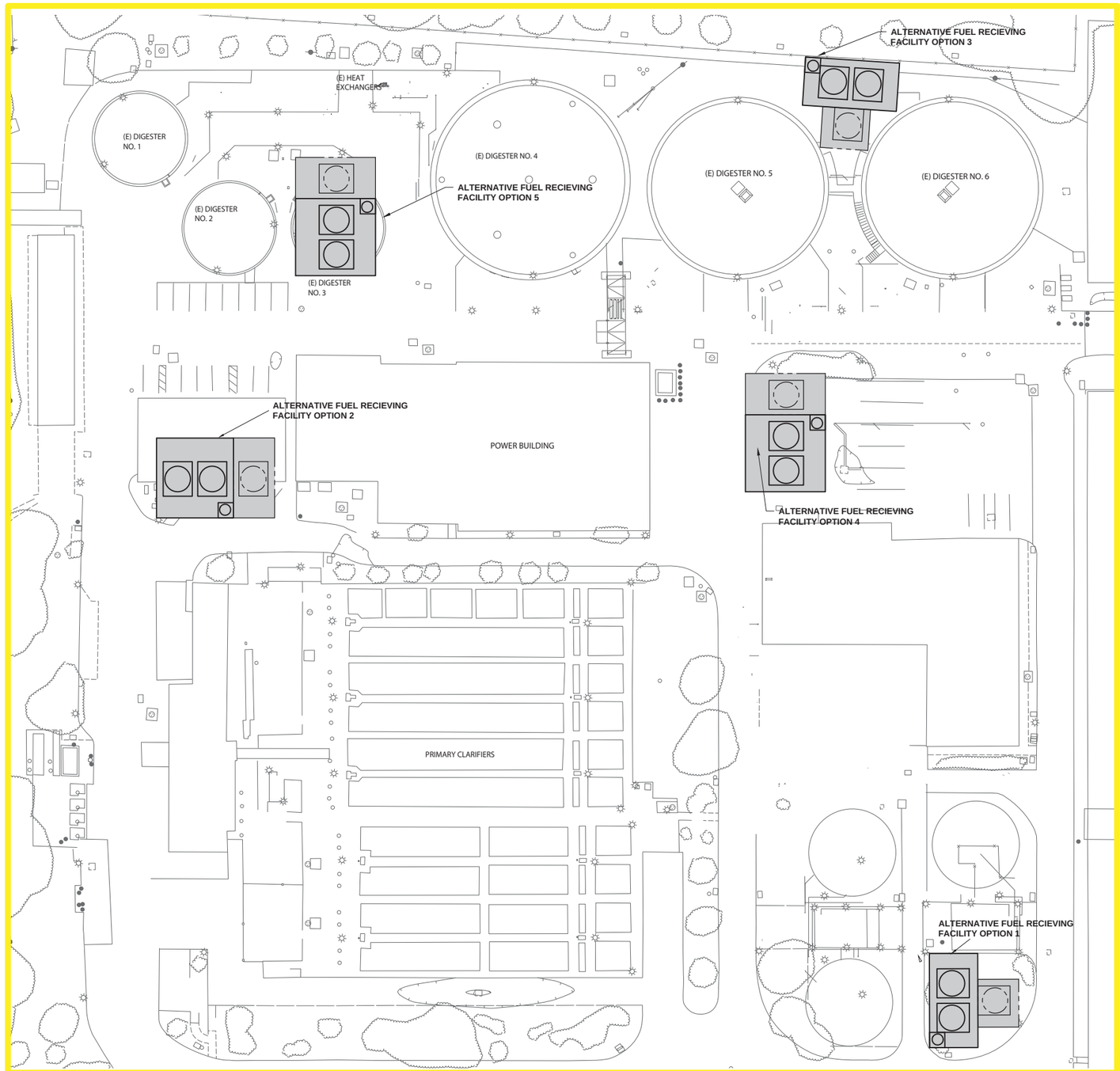

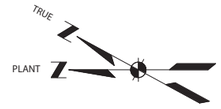

Kennedy/Jenks Consultants

ENCINA WASTEWATER AUTHORITY
ENCINA, CALIFORNIA
MITIGATED NEGATIVE DECLARATION

ALTERNATIVE FUEL RECEIVING STATION
POTENTIAL LOCATIONS - SITE PLAN

K/J 1187108.00
APRIL 2013

FIGURE 3-3

X:\DWG\2011\1187108 Encina WD\1187108-FIG2-3.dwg VICTOR LUCERO 10/11/2012 2:30 PM

X:\DWG\2011\1187108 Encina WD\1187108-FIG2-4.dwg VICTOR LUCERO 10/11/2012 2:25 PM

(E) DIGESTER NO. 1

(E) DIGESTER NO. 2

(E) DIGESTER NO. 3

(E) DIGESTER NO. 4

(E) HEAT EXCHANGERS

H2S REMOVAL (OPTIONS 1 & 2)

COMPRESSION MOISTER REMOVAL

SILOXANE REMOVAL

TRUE

PLANT

SILOXANE REMOVAL

H2S REMOVAL

SILOXANE REMOVAL

SILOXANE REMOVAL

H2S REMOVAL

PLAN

0 5 10 20 30

SCALE: 1"=10'-0"

LEGEND

OPTION 1

OPTION 2

OPTION 3

OPTION 4

Kennedy/Jenks Consultants

ENCINA WASTEWATER AUTHORITY
ENCINA, CALIFORNIA
MITIGATED NEGATIVE DECLARATION

GAS CONDITIONING SYSTEM
POTENTIAL LOCATIONS - SITE PLAN

K/J 1187108.00
APRIL 2013

FIGURE 3-4

The catalyst would be installed in the existing catalyst housing, pictured here.

The 5th engine would be added in the existing open bay at the south end of the engine building, pictured here

Legend:

EWPCF : Encina Water Pollution Control Facility

Kennedy/Jenks Consultants

Encina Wastewater Authority
Encina Energy Program Support

CEQA Mitigated Negative Declaration
Future Locations of Catalyst and 5th Engine

K/J #1187108
October 2012

Figure 3-5

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- Energy efficiency measures (EEM) that include modification of existing electrical motors by retrofitting several with variable speed drives, thereby reducing energy consumption.

The proposed project will result in the construction and/or installation of the following facilities:

- Alternative Fuel (Phase 1): Installation of a waste receiving station, including two 22,500 gallon above ground enclosed vessels with the following components:
    - Alternative Fuel haulers pipe receiving system with rock trap and grinder pump
    - Mixing pumps
    - Odor control system including piping connected to existing odor control units on adjacent solids handling building.
    - Metering pumps with piping extending to existing digesters
    - Hot water connections for cleaning Alternative Fuel materials to prevent clogging
    - Concrete slab and containment wall to contain spills
    - Pipe bridge
    - Addition of a third mixed gas blower to accommodate increased biogas production
    - Installation of variable frequency drives for two existing mixed gas blowers and new third blower to provide improved biogas pressurization control

- Biogas Conditioning (Phase 2):
    - Three enclosed above ground vessels containing sulfur removal media
    - Two enclosed above ground vessels containing siloxanes removal media
    - Gas piping connecting to existing piping
    - New biogas moisture removal system

- Cogeneration Engine Catalysts (Phase 2)
    - Installation of catalyst media within existing cogeneration engine exhaust catalyst vessels

- 5th Cogeneration Engine (Phase 3)
    - New cogeneration engine and electrical generator in existing building planned for 5th engine project
    - Exhaust system catalyst
    - Electrical switchgear improvements
    - 5th Cogeneration Engine installed when the plant electrical demand has exceeded capacity of existing cogeneration engines and biogas production has increased to provide sufficient fuel.

- EEM (Phase 4):
    - Installation of VFD units on existing water pump units
    - Installation of VFD units on air handling units and fans
    - Installation of high efficiency blowers
    - Other electrical demand reduction measures

3.1.4 Project Phasing and Construction Timeframe

The projects are proposed to be implemented in four phases:

- Phase 1: Alternative Fuel system
- Phase 2: Gas Conditioning and catalysts
- Phase 3: 5th Cogeneration Engine
- Phase 4: EEM improvements

Construction of Phase 1 is anticipated to commence in September 2013 and be completed in May 2014. Construction of Phase 2 is anticipated to begin in mid-2018 and be completed in 2019. Phase 3 construction is anticipated to commence in 2022, ending in 2023. Phase 4, EEM improvements, will be completed by 2020 and will consist of a series of relatively small projects. Upon completion, the proposed project is estimated to reduce electrical energy usage at the EWPCF by 1.7 million kw-hrs/year. Table 3-1 shows baseline projected energy usage over time, including purchased electricity, purchased natural gas, and on-site energy production, without the proposed project. Table 3-2 shows projected energy purchase (electricity and natural gas) anticipated over time as the different phases of the project are completed and brought on-line.

Table 3-1
BASELINE ENERGY USAGE (PROPOSED PROJECT IS NOT CONSTRUCTED)

Year	Total EWPCF Electricity Demand (kw-hr/year)	Electricity Purchase (kw-hr/year)	Biogas Production (therms/year)	Natural Gas Purchases (therms/year)	Electricity Self-Production (kw-hr/year)
2010	17,300,000	4,498,858	1,260,700	620,911	12,868,209
2015	20,600,000	7,790,657	1,687,100	549,137	12,868,209
2020	23,950,000	11,082,455	1,973,700	383,168	12,868,209
2025	25,933,000	14,374,254	2,260,300	273,774	12,868,209
2030	27,950,000	15,047,312	2,304,700	281,053	12,868,209

Table 3-2
ESTIMATED ENERGY USAGE (DURING CONSTRUCTION AND WITH PROJECT)

Year	Total EWPCF Electricity Demand (kw-hr/year)	Electricity Purchase (kw-hr/year)	Biogas Production (therms/year)	Natural Gas Purchases (therms/year)	Electricity Self-Production (kw-hr/year)
2010	17,300,000	4,498,858	1,260,700	620,911	12,868,209
2015	18,950,000	6,081,791	2,078,563	202,570	12,868,209
2020	22,250,000	0	2,626,138	704,000	22,250,000
2025	24,233,000	317,000	3,173,713	431,000	23,916,000
2030	26,215,000	2,299,000	3,479,088	281,053	23,916,000

3.1.5 Facility Operations After Proposed Project is Completed

Following implementation of the Energy Projects, the EWPCF will continue to treat wastewater using conventional activated sludge treatment. The Energy Projects will not increase wastewater treatment capacity, nor will it change the quality or quantity of effluent from the EWPCF plant. The Alternative Fuel component of the project is expected to result in a maximum of 13 deliveries/truck trips per day; the number of deliveries will be market driven and, as a result, fewer trips are possible. Table 3-3 provides an estimate of the average number of delivery trips anticipated as a result of project implementation.

Table 3-3: AVERAGE NUMBER OF ANTICIPATED TRUCK TRIPS

Year	Average Load (gallons per Truck)	Average Daily Deliveries (gallons per day)	Average Trucks per day
2015	3,500	15,000	4
2020	3,500	25,000	7
2025	3,500	35,000	10
2030	3,500	45,000	13

Operation of the Alternative Fuel component (Phase 1) will require the addition of 0.5 full time equivalent employees to the EWPCF site. Operation of the gas conditioning and catalyst component (Phase 2) will require the addition of 0.5 full time equivalent employees in addition to outsourced maintenance services. Operation of the 5th cogeneration engine (Phase 3) and EEMs (Phase 4) will not require additional employees.

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Section 4: Environmental Checklist

4.1 Introduction

EWA, as the CEQA Lead Agency, has prepared this MND to identify potential environmental impacts associated with the proposed project. This document includes a checklist for each resource topic, supporting explanations, and a discussion of mitigation measures that have been incorporated into the proposed project design to minimize potential impacts in each resource area.

The resource topics considered in this MND include:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

4.1.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

a,c,d) A primary visual resource in the project vicinity is the Pacific Ocean, which is located approximately one quarter mile to the west of the EWPCF site. The proposed project facility improvements will be located within the existing EWPCF site and will not considerably change the visual characteristics of the existing facility or add considerable height above existing infrastructure. All new facilities would be installed in areas that are already graded and paved. As a result, the proposed improvements will not create substantial impacts to the visual quality of the site or surroundings.

The EWPCF has existing lighting features, including nighttime safety lighting, as part of normal operations. Lighting fixtures added as part of the proposed improvements will not add a new source of substantial light or glare to the site.

b) The proposed project site is not located near a scenic highway. Interstate 5 has not been designated a scenic highway according to the Caltrans Scenic Highway Program (California DOT 2012). The closest designated highway, State Route 75, is over 35 miles from the project site. There would be no impacts.

Mitigation Measures

No mitigation measures are necessary for aesthetic resources.

4.1.2 AGRICULTURAL AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a-e) The proposed project would not be located on Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Forest Land. All construction would take place on a previously developed site identified by the Farmland Mapping and Monitoring Program as "Urban and Built Up Land" (California Department of Conservation, 2012) and zoned by the City of Carlsbad for public utility use. There would be no conversion of farmland to a

non-agricultural use or forest land to non-forest use. The proposed project would not involve a change in zoning. There would be no impacts to agricultural or forest resources within the project vicinity.

Mitigation Measures

No mitigation measures are necessary for agricultural and forestry resources.

4.1.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

An Air Quality Technical Report is provided in Appendix A of this Initial Study.

a) The EWPCF is within the San Diego County Air Basin, under the jurisdiction of the San Diego County Air Pollution Control District (SDAPCD). The SDAPCD is responsible for attaining state and federal clean air standards, and sets and enforces regulations for stationary sources in the Basin. As such, the Project would be subject to the San Diego Regional Air Quality Strategy (RAQS). The RAQS contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. The emission inventories and emission projections in the RAQS reflect the impact of all emission sources and all control measures, including those under the jurisdiction of the California Air Resources Board (ARB) (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and the U. S. Environmental Protection Agency (EPA) (e.g., aircraft, ships, trains, and pre-empted off-road equipment). Thus, while legal authority to control various pollution sources is

divided among agencies, SDAPCD is responsible for reflecting federal, State, and local measures in a single plan to achieve State ozone standards in San Diego County.

The emission inventories and emission projections in the RAQS are based, in part, on projections originating with county and city general plans. Because the Project is consistent with the Carlsbad General Plan, and pursuant to SDAPCD rules and regulations, it is considered consistent with the RAQS. As such, Project-related emissions, which are discussed in greater detail, below, are accounted for in the RAQS, and implementation of the Project would not conflict with or obstruct implementation of the applicable air quality plan.

b-c) The EPA designates all areas of the United States as having air quality better than the National Ambient Air Quality Standards (NAAQS) ("attainment"), worse than ("non-attainment") the NAAQS, or "unclassified" in areas where insufficient data exist. A non-attainment designation means that a primary NAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. Pollutants in an area are often designated as unclassified when there is a lack of data for the EPA to form a basis of attainment status. Just as the EPA designates air basins as being in "attainment" or "non-attainment" of the NAAQS, the ARB designates areas of the State as either in attainment or non-attainment of the California Ambient Air Quality Standards (CAAQS). An area is deemed "non-attainment" if a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant (County of San Diego 2007). Table 4-1 presents a summary of the Attainment Status by Pollutant for the San Diego County Air Basin. Table 4-2 presents a complete listing of the current attainments status by pollutant for San Diego County.

Table 4-1
SAN DIEGO COUNTY AIR BASIN
SUMMARY OF ATTAINMENT STATUS BY POLLUTANT

Pollutant	Attainment Status
Carbon monoxide	Attainment
Ozone (O_3)	Non-attainment Federal
Oxides of nitrogen (NO_x)	Attainment State, Maintenance Federal
$PM_{2.5}$	Non-attainment State
PM_{10}	Non-attainment State
Reactive Organic Gases (ROG)	Unclassified
Sulfur Dioxide (SO_2)	Attainment
Volatile Organic Compounds (VOC)	Unclassified

Reference: County of San Diego Guidelines for Determining Significance and Report Format and Content – Air Quality (Land Use and Environment Group, Department of Planning and Land Use Department of Public Works) March 19, 2007 (see Appendix A)

Table 4-2
SAN DIEGO COUNTY AIR BASIN
COMPLETE LISTING OF ATTAINMENT STATUS BY POLLUTANT

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Non-attainment	No Federal Standard
	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 Hour	Attainment	Maintenance Area[3]
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Unclassified	No Federal Standard

Notes
[1] Data reflects status as of March 19, 2007.
[2] Unclassified; indicates data are not sufficient for determining attainment or nonattainment.
[3] Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of the 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

Land-use development projects primarily result in emissions from construction activities and the traffic associated with daily operation of a proposed project. The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, if these incremental levels for stationary sources are exceeded, an Air Quality Impact Analysis must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate the increased emissions which would be discharged to the San Diego Air Basin from proposed land

development projects (County of San Diego 2007). SDAPCD provides the following table (Table 4-3) as the "significance threshold" levels for new or upgraded projects.

Table 4-3
CONSTRUCTION AND OPERATIONAL SCREENING-LEVEL THRESHOLDS (SIGNIFICANCE LEVELS)

Pollutant	Project Construction (pounds/day)[1]	Project Operation (tons/yr)
Carbon Monoxide (CO)	550	100
Volatile Organic Compounds (VOC)	75[3]	13.7[3]
Nitrogen Oxides (NO_x)	250	40
Sulfur Dioxide (SO_x)	250	40
Particulates (PM_{10})	100	15
Particulates ($PM_{2.5}$)	55	10
CO_2 (eq)[2]	---	10,000 (net change)

Notes
1 SDAPCD does not assign a quantitative threshold for construction or mobile source-related impacts.
2. SCAQMD significance threshold
3 The threshold for VOCs is based on threshold of significance for VOCs from the South Coast Air Quality Management District for Coachella and is for the incremental increase. It should be noted that Table 20.1-5 of the County of San Diego Air Pollution District defines a Major Modification using the Project Operation column above, but uses a 25 ton incremental increase for VOC.

Because the individual impact of any single source is undetectable on a basin-wide scale, many air quality agencies have developed surrogate significance thresholds that characterize a "cumulatively significant increase." These thresholds are based upon the daily or annual emission levels even though the direct impact is not quantifiable. SDAPCD has not developed emissions-based thresholds for CEQA purposes, but for the purpose of this MND the emission levels shown in Table 4-3 will be used.

Construction Related Emissions

During construction, temporary emissions will be generated by construction equipment used to build the proposed project elements. Construction equipment emissions were estimated by using a fleet of equipment (see Appendix A) anticipated to be used during construction activities: loaders, trucks, backhoes, pavers, compactors, generators, and bulldozers. It is anticipated that most of the heavy-duty equipment will be powered by diesel fuel. Diesel-powered equipment emits more nitrogen dioxide, sulfur dioxide, and particulate matter than gasoline-powered equipment. However, gasoline equipment emits more hydrocarbons and carbon monoxide (CO). Minimal soil movement is anticipated during the three construction phases. Dust suppression will be maintained in the disturbed areas. Grading may disturb surface soils and cause a discharge of particulates into the air. Each of the three phases of construction will span an approximately nine month period. Phase 1 is scheduled for 2013-14, Phases 2 and 3 for 2017-2023. Phase 4 which does not involve major construction is scheduled for 2020.

The construction equipment spreadsheet (CY 2014) from the South Coast Air Quality Management District's (SCAQMD) CEQA Air Quality Handbook was used to estimate the construction related emissions during each phase of construction. The estimated construction

related emissions associated with each phase are described below, and tables 4-4, 4-5, and 4-6 provide a summary of each construction phase (detailed worksheets are provided in Appendix A).

Phase 1 – Biofuel Receiving, Storage and Distribution (9 months)

During this nine month period, equipment and personnel will be on site to remove existing asphalt, concrete, and soil in preparation for the new receiving, storage, and pumping facilities. During this period, small amounts of excavation, concrete placement, equipment placement, and mechanical interconnection activities will be completed. Approximately 2 to 8 personnel will be on site during this construction phase. Table 4-4 documents potential emissions during Phase 1 construction. Table 4-4 shows that Phase 1 construction emissions will be less than significant.

Table 4-4
PHASE 1 – SUMMARY OF CONSTRUCTIONS EMISSIONS

Emission Source	VOC	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide
Construction Equipment	8.25	28.8	67.6	0.01	2.8	9,155
Deliveries	19	180	417	45	26	22,308
Worker Vehicle	63.5	804	81.7	0	0	40,155
Total Pounds[1]	90.75	1,012.8	566.3	45	28.8	71,618
Total Pounds Per Day[2]	0.45	5.11	2.86	0.23	0.15	361
Threshold	75	550	250	250	55	NA
Threshold Exceeded?/ Potentially Significant Impact	No	No	No	No	No	No

Notes
1 Total assumes all construction related activities are occurring over entire nine month period
2 Assumes 198 construction days in a 9 month period
Reference: Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

Phase 2 – Gas Conditioning and Catalyst Installation (9 months)

During this nine month period, equipment and personnel will be on site to remove existing asphalt, concrete, and soil in preparation for new biogas conditioning facilities and installation of the catalyst equipment on the four existing engines. During this period, small amounts of excavation, concrete placement, equipment placement, and mechanical interconnection activities will be completed. Approximately 3 to 10 personnel will be on site during this construction phase. Table 4-5 documents potential emissions during Phase 2 construction. Table 4-5 shows that Phase 2 construction emissions will be less than significant.

Table 4-5
PHASE 2 – SUMMARY OF CONSTRUCTION EMISSIONS

Emission Source	VOC	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide
Construction Equipment	11.1	38.6	90.9	0.13	3.7	12,490
Deliveries	32	302.4	700	75.6	43.7	37,500
Worker Vehicle	90	1,142	115.7	0	0	56,900
Total Pounds[1]	133.1	1,453	906.6	75.73	47.4	106,890
Total Pounds Per Day[2]	0.67	7.34	4.58	0.38	0.24	539.85
Threshold	75	550	250	250	55	NA
Threshold Exceeded?/ Potentially Significant Impact	No	No	No	No	No	No

Notes
1 Total assumes all construction related activities are occurring over entire nine month period
2 Assumes 198 construction days in a 9 month period
Reference: Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

Phase 3 – Engine #5 Installation (9 months)

During this nine month period, equipment and personnel will be on site to install the fifth engine within the existing cogeneration building. During this period, equipment placement and mechanical interconnection activities will be completed. The foundation and support interconnections were previously installed as part of the original cogeneration expansion project. Approximately 3 to 5 personnel will be on site during this construction phase. Table 4-6 documents potential emissions during Phase 3 construction. Table 4-6 shows that Phase 3 construction emissions will be less than significant.

Phase 4 – Energy Efficiency Measures

Phase 4 consists of minor modifications to existing pump units and air handling units and will not involve major construction equipment or emissions.

Table 4-6
PHASE 3 – SUMMARY OF CONSTRUCTION EMISSIONS

Emission Source	VOC	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide
Construction Equipment	0.6	2.2	5.3	0.007	0.2	1,620
Deliveries	3.8	36	83.4	9	5.2	4,460
Worker Vehicle	71.9	912.2	92.6	0	0	45,510
Total Pounds[1]	76.3	950.4	181.3	9	5.4	51,590
Total Pounds Per Day[2]	0.38	4.8	0.92	0.04	0.03	260.56
Threshold	75	550	250	250	55	NA
Threshold Exceeded?/ Potentially Significant Impact	No	No	No	No	No	No

Notes
1 Total assumes all construction related activities are occurring over entire nine month period
2 Assumes 198 construction days in a 9 month period
Reference: Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

Project Operations Emissions (EWPCF with Alternative Fuel Addition)

Operational Emissions Following Phase 1

Alternative fuel will be added at an estimated rate of 15,000 gallons per day, seven days per week (5.475 million gallons per year). Using a conversion rate of 13,000 cubic feet of biogas per 1,000 gallons of alternative fuel, it is estimate that the Phase 1 period (2014-2019) will produce 194,800 cubic feet of biogas per day (71.1 million cubic feet per year). The heating value of the digester is approximately 60 percent of natural gas; therefore, 1.6 cubic feet of biogas will be required to offset one cubic foot of natural gas. Based on current APCD air permit conditions allowing the EWPCF to operate as a non-Title V facility, the additional biogas will offset natural gas currently being used in the biosolids dryer. Additional biogas may be used to offset natural gas for cogeneration during the Phase 1 period in accordance with existing APCD permit requirements. The existing emergency biogas flare permit may require an amendment during the Phase 1 period. Table 4-7 provides an estimated annual gas production and utilization summary comparing current and post Phase 1 construction. Table 4-8 provides a comparison of the emissions associated with the Phase 1 construction project. Table 4-8 demonstrates the incremental changes in emission levels for the Phase 1 project are below the significance levels.

Table 4-7
PHASE 1 – SUMMARY OF ANNUAL OPERATION GAS UTILIZATION
COGENERATION AND SLUDGE DRYER

Process Unit	Current (mmcft)	Phase 1 (mmcft)	Change (mmcft)
Cogeneration (Biogas)	224	224[1]	0
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Biogas)	5.4	95	+89.6
Biosolids Dryer (Natural Gas)	64.8	20.2	-44.6
Flare (Biogas)	0	0[2]	0

Notes
mmcft million standard cubic feet of gas
1 Cogeneration emissions will not changes as part of this Phase 1. Operations will remain in accordance with current APCD permit conditions.
Alternative Fuel utilization and deliveries will be monitored and adjusted to minimize potential flaring of excess gas.

Table 4-8
SUMMARY OF ANNUAL OPERATION EMISSIONS FOLLOWING PHASE 1
(Existing, Future after upgrade, Net Increase)

Emission Source	VOC (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (tons/yr)[1]
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosolids Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,605
Total	15.6	93.9	14.2	0.3	3.6	10,639
Phase 1 (2014 – 2019)						
Cogeneration w/ Natural Gas Supplement	16.2	90.8	13.1	0.2	3.2	7,033
Biosolids Dryer Digester & Natural Gas	1.7	8.0	3.1	0.3	4.5	4,054
Total	17.9	98.8	16.2	0.5	7.7	11,087
Net Change (tons/yr)	2.3	4.9	2.0	0.2	4.1	448
Significance Threshold	13.7	100	40.0	40.0	15.0	10,000
Threshold Exceeded?/ Potentially Significant Impact[2]	No	No	No	No	No	No

Notes
1 Non-Biogenic, Biogenic, and Total Carbon Dioxide emissions can be found in Appendix A, Table 17.
2 Determination based on comparison of Total Phase 1 and 2 emissions compared to threshold, except for VOC and CO_2, where net change with project is compared to significance threshold.

Operational Emissions Following Phase 2

Alternative Fuel will be added at an estimated rate of 25,000 gallons per day, seven days per week (9.1 million gallons per year). Using a conversion rate of 13,000 cubic feet of biogas per 1,000 gallons of Alternative Fuel, it is estimated that the Phase 2 period (2017-2023) will produce 325,000 cubic feet of biogas per day (118 million cubic feet per year).

The installation of biogas cleaning systems and catalyst on each of the four cogeneration engines, in conjunction with modification to the existing SDAPCD permits, will allow additional operational flexibility and increase runtime on the cogeneration engines. During the Phase 2 period, three of the four engines will operate at any one time. Table 4-9 provides an estimated annual gas production and utilization summary comparing current and post Phase 2 implementation.

Table 4-9
PHASE 2 – SUMMARY OF ANNUAL OPERATION GAS UTILIZATION
COGENERATION AND SLUDGE DRYER

Process Unit	Current (mmcft)	Phase 2 (mmcft)	Change (mmcft)
Cogeneration (Biogas)	224	395.7	+171.7
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Biogas)	5.4	36.3	+30.9
Biosolids Dryer (Natural Gas)	64.8	70.4	+5.6
Flare (Biogas)	0	0[1]	0

Notes
mmcft million standard cubic feet of gas
1 Cogeneration emissions will not change as part of this Phase 1. Operations will remain in accordance with current APCD permit conditions.

The combination of biogas conditioning and catalyst will reduce the emissions associated with internal combustion engines as illustrated in Table 4-10. Table 4-11 provides a comparative of the emissions associated with implementation of Phase 1 and 2. Table 4-11 demonstrates that incremental changes in emission levels following implementation of Phases 1 and 2 are less than significant.

Table 4-10
COGENERATION ENGINES WITH GAS CONDITIONING AND CATALYST

Pollutant	Current[1] (#/mmcf biogas)	Gas Conditioning and Catalyst[2] (#/mmcf biogas)	% reduction
NO_x	111	111	0
CO	810	81	90
VOC	136	14	90
Particulate Matter	28	28	0
SO_x	2	0.5	75

Notes
1 Current Permit Conditions (CY 2012)
2 Catalyst or Gas Conditioning Manufacturer's Specifications

Table 4-11
SUMMARY OF ANNUAL OPERATION EMISSIONS
FOLLOWING PHASE 1 AND 2
(Existing, Future after upgrade, Net Increase)

Emission Source	VOC (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (tons/yr)[1]
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosolids Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,6054
Total	15.6	93.9	14.2	0.3	3.6	10,639
Phase 1 and 2 (2019 – 2023)						
Cogeneration w/ Natural Gas Supplement	2.7	16.0	21.9	0.1	5.5	12,425
Biosolids Dryer Digester & Natural Gas	0.8	5.7	2.8	0.1	1.9	4,872
Total	3.5	21.7	24.7	0.2	7.4	17,297
Net Change (tons/yr)	-12.1	-72.2	10.5	-0.1	3.8	6,658
Significance Threshold	13.7	100	40.0	40.0	15.0	10,000
Threshold Exceeded?/ Potentially Significant Impact[2]	No	No	No	No	No	No

Notes

1 Non-Biogenic, Biogenic, and Total Carbon Dioxide emissions can be found in Appendix A, Table 17.

2 Determination based on comparison of Total Phase 1 and 2 emissions compared to threshold, except for VOC and CO_2, where net change with project is compared to significance threshold.

Operational Emissions Following Phase 3

Alternative Fuel will be added at an estimated rate of 35,000 gallons per day, seven days a week (12.75 million gallons per year). Using a conversion rate of 13,000 cubic feet of biogas per 1,000 gallons of bio-fuel, it is estimated that the Phase 3 period (2023-2030) will produce 455,000 cubic feet of biogas per day (166 million cubic feet per year).

The installation of the fifth cogeneration engine with catalyst will require a permit for the fifth engine and overall permit modifications to allow four engines to operate at any one time with the fifth engine as standby/back-up). Table 4-12 provides an estimated annual gas production and utilization summary comparing current and post Phase 3 construction. Table 4-13 provides a comparative of the emissions associated with the Phase 3 construction project. Table 4-13 demonstrates that the incremental changes in emission levels following implementation of Phases 1-3 are less than significant.

Table 4-12
PHASE 3 – SUMMARY OF ANNUAL OPERATION GAS UTILIZATION
COGENERATION AND SLUDGE DRYER

Process Unit	Current (mmcft)	Phase 3 (mmcft)	Change (mmcft)
Cogeneration (Biogas)	224	427	+203
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Biogas)	5.4	106	+100.6
Biosolids Dryer (Natural Gas)	64.8	43.2	-21.6
Flare (Biogas)	0	0[1]	0

Notes
mmcft million standard cubic feet of gas
1 Cogeneration emissions will not change as part of this Phase 1. Operations will remain in accordance with current APCD permit conditions.

Table 4-13
SUMMARY OF ANNUAL OPERATION EMISSIONS FOLLOWING PHASES 1, 2, AND 3
(Existing, Future after upgrade, Net Increase)

Emission Source	VOC (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (tons/yr)[1]
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosolids Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,605
Total	15.6	93.9	14.2	0.3	3.6	10,639
Phases 1-3 (2023 – 2030)						
Cogeneration w/ Natural Gas Supplement	2.9	17.3	23.6	0.1	5.8	13,408
Biosolids Dryer Digester & Natural Gas	1.9	9.9	4.0	0.3	5.1	5,619
Total	4.8	27.2	27.6	0.4	10.9	19,026
Net Change (tons/yr)	-10.8	-66.7	13.4	0.1	7.3	8,387
Significance Threshold	13.7	100	40.0	40.0	15.0	10,000
Threshold Exceeded?/ Potentially Significant Impact[2]	No	No	No	No	No	No

Notes
1 Non-Biogenic, Biogenic, and Total Carbon Dioxide emissions can be found in Appendix A, Table 17.
2 Determination based on comparison of Total Phase 1 and 2 emissions compared to threshold, except for VOC and CO_2, where net change with project is compared to significance threshold.

Summary of Impacts

Based on the analysis summarized above and detailed in Appendix A, all project phases (1 through 4) are below the levels of significance during both construction and project operation periods; VOCs hydrocarbons and carbon monoxide net emissions actually decrease from current 2012 levels. Thus, the project does not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Similarly, the project does not result in a considerable net increase of any criteria pollutant in any non-attainment areas nor have a cumulatively considerable impact.

d) The SDAPCD defines sensitive receptors as schools, hospitals, day care centers, and convalescent homes (SDAPCD 1996). There are no schools, hospitals, day care centers or convalescent homes located within 1,000 feet of the EWPCF. In addition, the overall lack of substantial pollutant concentrations above SDAPCD levels of significance indicates the impact would be less than significant. The project will have to comply with Rule 1200, (*Toxic Air Contaminants – New Source Review).* This Rule identifies standards and procedures for health risk assessments. Cancer risk criteria are based on whether the proposed project elements are considered to be Best Available Control Technology for Toxics (T-BACT). If T-BACT is applied to an emission unit, the maximum incremental cancer risk at every receptor location cannot exceed 10 in 1 million. If T-BACT is not applied, the maximum cancer risk cannot exceed 1 in 1 million. Installation of the new equipment will be evaluated during the permitting process on a Phase by Phase basis to demonstrate the project elements are consistent with T-BACT requirements. Additionally, the increase in the total acute and chronic non-cancer health hazard index at every receptor cannot be greater than 1 as result of a new project. As part of each phase of the project a Health Risk Assessment will be completed as part of the air permitting process to demonstrate compliance with Rule 1200.

e) The Alternative Fuel system installed during Phase 1 of the proposed project includes an odor control system, including piping connected to the existing odor control units on the EWPCF's solids handling building. Alternative fuel storage and biogas treatment will occur in closed tanks. There may be some fugitive odors associated with the unloading process. Any additional odors generated as a result of the Alternative Fuel system and the associated FOG will be mitigated by this odor control system; thus, the project will not create any questionable odors.

Mitigation Measures

Based on the analysis summarized above and detailed in Appendix A, all project phases are below SDAPCD levels of significance. To further reduce any potential air quality impacts, the following mitigation measures will be implemented:

AQ1 All unpaved construction areas shall be sprinkled with water or other acceptable San Diego APCD dust control agents during dust-generating activities to reduce dust emissions. Additional watering or acceptable APCD dust control agents shall be applied during dry weather or windy days until dust emissions are not visible.

AQ2 Trucks hauling dirt and debris shall be covered to reduce windblown dust and spills.

AQ3 On dry days, dirt or debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.

AQ4 On-site stockpiles of excavated material shall be covered or watered.

AQ5 Abide by all conditions of approval for dust control required by the San Diego APCD.

AQ6 Use low pollutant-emitting construction equipment.

AQ7 Equip construction equipment with prechamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of nitrogen oxide, to the extent available and feasible. CARB certified stationary equipment shall be used.

AQ8 Use electrical construction equipment, to the extent feasible.

4.1.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have substantial adverse effects, 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant with 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?	☐	☐	☐	☒

a-f) The proposed project would occur within the footprint of the existing EWPCF. All work will occur on previously developed and paved land within the existing EWPCF site, where biological resource values are extremely limited, and where there is no suitable habitat for sensitive species. The proposed project will not result in disturbance to local natural systems or biological resources.

The project area lies within the North County Multiple Habitat Conservation Program, a subregional plan of the San Diego region (SANDAG 2003). The EWPCF site, and thereby the project area, lies within area categorized as developed, carrying no habitat or conservation value. On a city-specific level, sensitive biological species preservation and protection in the project area is guided by the Habitat Management Plan of the City of Carlsbad (City of Carlsbad 2004), which was developed in cooperation with federal and state wildlife agencies. The EWPCF site is not located within boundaries of the preserve system established through the Habitat Management Plan. The preserve system management unit closest to the project site is the Poinsettia/Aviara management unit, which is separated by the project site by Interstate 5.

Project impacts will occur within developed areas of the existing EWPCF site, which is not located within or adjacent to streams or wetlands. Project activities will not result in impacts to the physical or biological integrity of such natural systems.

Mitigation Measures

No mitigation measures are necessary for biological resources.

4.1.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

a)-d) Project impacts will occur within the existing EWPCF site, which has been previously developed, graded, and compacted. Due to the limited area to be disturbed and minimal depth to ground surface disturbance, and that the proposed facilities would be located entirely within the existing EWPCF site, the potential for encountering important cultural, archaeological and paleontological resources is considered to be low.

There is no evidence of historic or archaeological objects or formations that could indicate presence of cultural resources within the EWPCF site (Westec Services 1988) and therefore, no impacts to cultural resources would occur with project implementation.

The EWPCF site, is not identified as a significant historical or cultural resource and is not included in a local, state, or federal register of historical resources. Within the City of Carlsbad, there are two resources listed in the California Register of Historical Resources (California State Parks 2013), both of which are located greater than two miles away from the project area. As a result, the proposed project will not cause substantial adverse change to California historical resources.

Mitigation Measures

No mitigation measures are necessary for cultural resources.

4.1.6 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) 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?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

a) The proposed project is located within southern California, a seismically active region. A review of the most recent Alquist-Priolo Earthquake Fault Zone Map (California

Department of Conservation, 2007) found that the proposed project is not located within a USGS quadrangle where Alquist Priolo fault zones occur, nor is the project area located within landslide and liquefaction zones. While no faults have been identified within the area of impact of the proposed project, faults located outside of the project area of impact, such as the Rose Canyon, Elsinore, and San Andreas Faults, may pose significant seismic threat to the area of the proposed project. Major quakes on regional faults could result in ground displacements along the fault scarps and intense groundshaking that would be expected to damage vulnerable structures and could result in localized ground failure.

Facility designs will incorporate design standards to withstand the local groundshaking predicted for the area as a result of the regional fault zones. Incorporating such seismic design standards will prevent catastrophic failure of the facilities in the event of an earthquake or other disaster, based on a reasonable standard of professional design care. Due to the nature of the project, the project is not expected to expose people or property to a substantial risk of adverse effects from seismic hazards, including fault rupture and groundshaking. However, implementation of the mitigation measure below is incorporated to reduce potential impacts to any structures from groundshaking to a less than significant level.

Liquefaction is the process in which poorly consolidated, sandy soils take on the properties of a liquid when subjected to strong ground shaking. All proposed work will occur on previously developed and paved land within the existing 25-acre EWPCF site. Due to the existing foundation of the project site, the potential for liquefaction is considered to be negligible.

Landslides within or near the proposed project site are not considered to pose a significant threat. The existing EWPCF site is situated on a relatively flat developed parcel, with no source of a landslide in the immediate proximity. According to landslide maps from the California Department of Conservation, *Landslide Hazards in the Encinitas Quadrangle, San Diego County, California, Landslide Hazard Identification Map No. 4* (http://www.quake.ca.gov/gmaps/WH/landslidemaps.htm), the EWPCF site is located within an area of marginal susceptibility to landslides, where material is considered unlikely to remobilize under natural conditions. Slopes closest to the project area that are considered steep, with a grade greater than 2:1, are directly located along the coastline, approximately a quarter mile from the project site.

b-d) The proposed project will occur within the previously developed and paved land of the existing 25-acre EWPCF site. As a result, the proposed project is not anticipated to result in substantial soil erosion or the loss of topsoil. Due to the existing foundation of the project site, the potential for liquefaction is considered to be negligible.

f) The proposed project does not include the use of septic tanks or other onsite subsurface disposal systems not associated with municipal sewer collection and disposal systems. Therefore, no impacts would occur related to soils incapable of adequately supporting septic or other alternative wastewater disposal systems.

Mitigation Measures

The following mitigation measures will be made part of the project:

GS1 The structural design and construction of new structures will, at a minimum, be in accordance with the requirements of the most recent Uniform Building Code and California Building Code including the latest supplements for Groundshaking Zone 4 as described in the 2010 California Building Code and all other applicable City, County, State and Federal laws, regulations and guidelines.

Significance After Mitigation

Mitigation measure GS-1 will insure that impacts related to geology and soils will be less than significant.

4.1.7 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	☐	☒

a-b) In its Climate Action Plan (June 2012) and associated Draft Guidelines for Determining Significance, Climate Change (June 2012) the County of San Diego establishes levels of significance for GHG emissions. These levels of significance apply to new net emissions, not existing emissions, which are already included in other planning documents, including the County's General Plan. For stationary sources, including water and wastewater treatment plants, the level of significance is 10,000 metric tons of CO_2 equivalent a year. Upon completion, the proposed project results in a total annual estimated emission of 8,387 metric tons of CO_2 equivalent a year (biogenic emissions increase 9,533 metric tons, while non-biogenic emissions decrease by 1,136 metric tons for a net increase of 8,387 metric tons. See Table 4-13 and Appendix A, Table 17 for Biogenic and Non-Biogenic emissions), 84 percent of the established level of significance.

EWA recently completed the calendar year (CY) 2011 California Emission Inventory for GHG. EWA, based on a cogeneration rated capacity in excess of 1.0 MW, has participated in the State of California program since 2008. The generation of biofuel is considered a biogenic renewable fuel and the increased biofuel use associated with the proposed project will reduce the use of natural gas as well as offset purchase of electricity from SDG&E, which is considered an indirect GHG emission. GHG emissions associated with biogenic (biogas) sources are classified as a renewable type activity and are recorded independently in the State of California database.

The proposed project will reduce the use of indirect GHG emissions (electricity purchased from SDG&E) as well as direct non-biogenic GHG emissions (natural gas), while increasing biogenic emissions (biofuel). The net increase in annual CO_2 equivalent is less than the County of San Diego's established level of significance as defined in its Climate Action Plan. Thus, the proposed project will not have significant GHG impacts.

Mitigation Measures

No mitigation measures are necessary for GHGs.

4.1.8 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☒	☐	☐
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with 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?	☐	☐	☒	☐

a) The project will involve use of petroleum products, adhesives, solvents, and degreasers during the construction phase. The project will involve the handling of FOG during operations. Use and disposal of hazardous and/or toxic materials is conducted in accordance with existing laws and regulations to prevent hazardous conditions to the public and the environment. In instances where construction and operation of the proposed project facilities require use of hazardous materials, implementation of mitigation measures HAZ1, HAZ2, and HAZ3 will reduce potential hazards to a less than significant level.

b) Both during construction and operation at facilities, such as the EWPCF, a potential exists for accidental release of hazardous materials. Such accidental releases of hazardous materials are readily controlled to a less than significant level of hazard through control or remediation of the material accidentally released. Implementation of mitigation measures HAZ1 through HAZ4 can prevent any significant exposures to hazardous or toxic materials by the public or employees at the location of an accidental spill. These measures are sufficient to control or limit the adverse impact of accidental releases to a less than significant impact level.

c) There is no existing or proposed school located within one quarter mile of the EWCPF site that would be subject to hazardous emissions or exposure to hazardous or acutely hazardous materials, substances, or waste. Therefore, the proposed project would have no impact.

d) The proposed project facilities will not be located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and therefore the project would not create a significant hazard to the public or environment due to construction or operations. There would be no impact.

e) The EWCPF, where the proposed project will be constructed, is located within approximately 2.25 miles of the nearest public airport, the McClellan-Palomar Airport. According to the McClellan-Palomar Airport Land Use Compatibility Plan (Rincon & Associates, Inc. 2011), the project site lies beyond the airport safety zones, but is located within the Review Area 2 of the airport influence area. Within this area, the only restrictions on land uses are limits on the heights of structures, particularly in elevated terrain.

There has been no conflict with the existing EWCPF and the McClellan-Palomar Airport and it is not anticipated that proposed facility improvements will result in related safety hazards for people residing or working in the project area.

To ensure that the proposed project will not create hazards or conflicts related to aircraft operations the mitigation measure HAZ4 will be implemented.

f) There are no known private airstrips within the project vicinity. Therefore, there would be no related hazard impacts.

g) Major potential evacuation routes are located along major highways and major roads. The proposed project will be located within the boundaries of the existing EWCPF, which currently does not interfere with road way circulation. The City of Carlsbad Fire Department provides fire protection and paramedic services to the City of Carlsbad. Potentially heightened traffic during the short-term of the construction phases is not anticipated to create significant interference to potential emergency road ways. Construction vehicles have the potential to use the same routes as first response vehicles, however this impact would be temporary and the local Fire Department would be notified of construction schedules and access routes prior to construction, so that impacts would be less than significant. Construction and operation of the proposed project is not anticipated to affect the activities of any emergency first response services on the long-term, nor will proposed project activities and facilities have potential to permanently impact emergency evacuation or response plans.

h) The City of Carlsbad is considered to be a medium fire hazard area for wildland fires (City of Carlsbad 1994). The project site itself does not share an interface with wildlands that could be prone to fires although some vegetation, including landscaping, does exist along the perimeter of the facility site. Small parcels of open, vegetated lands within the vicinity of the project site are separated from the project site by roadways and train tracks. Given these site characteristics, project activities and facilities are not anticipated to increase risk of wildfire.

Mitigation Measures

The following mitigation measures will be made part of the project:

HAZ1 All spills or leakage of hazardous wastes during construction shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. All contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment.

HAZ2 All construction equipment shall be regularly inspected for leaks.

HAZ3 A prevention and response plan shall be prepared that will incorporate best management practices (BMPs) designed to minimize the potential for accidental release of hazardous materials or wastes. The developed plan shall assess the potential accidental release scenarios and identify the equipment and response

capabilities required to provide immediate containment, control and collection of any released material, and assess potential exposure pathways.

HAZ4 Prior to installing any above ground structures or facilities within the public airport restricted height area, a final determination will be made on the acceptability of such facilities within this area. If it is not permitted, such structures or facilities will be modified to comply with given restrictions. Any exceptions will be obtained in accordance with Federal Aviation Administration regulations.

Significance After Mitigation

Mitigation measures HAZ1 through HAZ4 will insure that impacts related to hazards and hazardous materials will be less than significant.

4.1.9 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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 pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
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 offsite?	☐	☐	☐	☒
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 offsite?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
structures which would impede or redirect flood flows?				
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a) Runoff from the EWPCF is currently directed into the treatment plant for further processing or to the Encinas Creek. No regular non-storm water discharges from the EWPCF site to the Encinas Creek occur. A Stormwater Pollution Prevention Plan for the EWPCF site has been developed and implemented in compliance with State Water Resources Control Board Water Quality Order No. 91-13-DWQ; National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001; Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. Activities related to the proposed project would comply with these permit requirements. As the proposed project will take place on already developed and paved lands, water quality threats from construction-related stormwater runoff are not anticipated to be significant..

Currently, operations at the EWPCF are subject to the Waste Discharge Requirements for the Encinas Wastewater Authority Order No. R9-2011-0019, NPDES No. CA0107395, which regulates discharge to the Pacific Ocean via the Encina Ocean Outfall. The proposed project will not impact existing ocean discharge.

b) No impacts are anticipated from the proposed project on groundwater resources, including impacts to groundwater wells or groundwater recharge. The project is not located near groundwater wells. Because the project will occur in an already paved site it will not affect groundwater recharge.

c)– e) The proposed project would not result in substantial impacts to drainage patterns in or around the project site. There are no streams that run through or within proximity to the site that could be impacted by construction or operation activities with respect to altering the course or changing runoff patterns. Project activities will occur within already graded and paved areas and the area of impervious surfaces will not increase due to project implementation. As a result, enhanced runoff and resulting enhanced flood impacts are not expected from project implementation.

f) As noted in (a) through (e) above, project implementation is not anticipated to substantially contribute to enhanced runoff which could impact water quality and BMPs implemented as part of construction activities will minimize potential for stormwater-

related water quality impacts. Operations of the proposed project are not anticipated to cause water quality impairments. Containing walls constructed at the waste receiving will contain spills and prevent potential contamination of onsite and offsite runoff. No impacts are anticipated.

g) The proposed project does not directly or indirectly involve housing or housing resources; therefore, it has no potential to expose housing to 100-year flood hazards. There would be no impact.

h) The proposed project will be implemented within the existing EWCPF, which does not lie within a 100-year flood zone area, based on the FEMA issued Flood Insurance Rate Map (Map number 06073C1030G). The nearest 100-year flood zone is associated with the coastline, which lies approximately a quarter mile from the project site. The proposed project would have no impacts on flood hazards, including through impediment or redirection of flood flows.

i) There are no levees or dams in proximity to the site. There would be no impacts associated with failure of a levee or a dam.

j) The project site lies within less than 1 mile from the coastline, which could potentially experience tsunamis. In the past in San Diego County, wave heights and run-up elevations from tsunamis have fallen within normal tide ranges (County of San Diego, 2007) . In addition, the project site is located uphill from the shoreline. Therefore, no impacts, including inundation, from tsunamis are expected.

The project site is not located in the immediate vicinity of a water body or stream, where a seiche or mudflows could originate that might cause inundation. Apart from the Pacific Ocean, the water body closest to the project site is the Agua Hedionda Lagoon, located approximately 1.5 miles northwest of the project site. No impacts are anticipated.

Mitigation Measures

No mitigation measures are necessary for hydrology or water quality.

4.1.10 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a, b) Construction of the proposed project will take place within the existing EWPCF facilities, currently zoned for public utility uses. There would be no effect on an established community and no conflict with an applicable land use plan, policy, or regulation, including the City of Carlsbad General Plan and zoning ordinances. No impacts would occur.

c) The project site lies within an area subject to the subregional North County Multiple Habitat Conservation Program, and the city-specific Habitat Management Plan of the City of Carlsbad. There is no conflict with these plans. Compatibility with these plans is discussed in 4.1.4 Biological Resources of this document.

Mitigation Measures

No mitigation measures are necessary related to land use planning.

4.1.11 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a, b) According to the City of Carlsbad General Plan, Open Space and Conservation (City of Carlsbad 1994), the City does not have any economically significant mineral resources. Therefore, the project will not result in the loss of availability of a known valuable mineral resource or important mineral resource recovery sites.

Mitigation Measures

No mitigation measures are necessary related to mineral resources.

4.1.12 NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above level, existing without the project	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f) 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?	☐	☐	☐	☒

a-d) This noise analysis incorporates data from the environmental noise assessment conducted as part of the Mitigated Negative Declaration for the Encina Wastewater Authority Encina Water Pollution Control Facility Phase V Expansion (Dudek & Associates 2003).

Community noise levels are presented in terms of Community Noise Equivalent Level (CNEL), which is the average A-weighted noise level for a 24-hour period. CNEL adds a

10 decibel (dB) penalty for noise occurring between 10:00 p.m. and 7:00 a.m. and a 5 dB penalty for noise occurring between 7:00 p.m. to 10:00 p.m. All sound levels presented here are A-weighted.

The Noise Guidelines Manual of the City of Carlsbad, identifies compatible exterior noise levels for various land use types. Community noise exposure levels at residential land uses are considered normally acceptable up to 60 dB. Planned Industrial land uses are considered normally acceptable up to 65 dB CNEL and conditionally acceptable up to 75 dB. Utilities and general industrial land uses are considered normally acceptable up to 70 dB CNEL and conditionally acceptable up to 80 dB CNEL. Based on noise exposure contour maps, the EWPCF is located within an area generally exposed to 70 dB CNEL (City of Carlsbad 1995).

Construction noise is regulated in the City of Carlsbad Municipal Code by limiting the hours of operation. Construction activities are allowed to occur Monday through Friday between the hours of 7 a.m. to sunset, and on Saturdays from 8 a.m. to sunset. No such activities may occur on legal holidays.

The EWPCF is located between planned industrial land uses to the north and planned industrial/open space to the south. The facility site is separated from residential land uses to the east by Interstate 5 and to the west by Avenida Encinas and the Amtrak/North County Transit District train track. Interstate 5 and Avenida Encinas are the primary existing off-site noise sources affecting the site. Additional existing noise sources in the area include traffic along Palomar Airport Road, aircraft traffic from McClellan-Palomar Airport, as well as passenger and freight trains along the railway. Existing average daily traffic (ADT) along Avenida Encinas is approximately 6,000 ADT (Dudek & Associates 2003).

Ambient noise levels in the vicinity of the EWPCF fluctuate during a 24-hour period, with noise levels generally increasing during the day and highest noise levels generated from traffic on Interstate 5. Average sound levels measured adjacent to the existing EWPCF during the environmental noise assessment ranged from 58 to 67 dB during the day (Dudek & Associates 2003).

Noise associated with the project would result from short-term construction activities as well as operational activities of the proposed facilities. The project's contribution to the ambient noise level will vary, but the noise associated with the facility improvements would not noticeably increase the ambient noise level beyond the project site. Based on existing noise levels and established standards, noise impacts from the proposed project would be less than significant.

Below is a discussion of the noise anticipated to be generated from both, construction and operating activities.

Construction Noise

The noise levels created by construction equipment would vary depending upon factors such as the type and specific model of the equipment, the operation being performed and the condition of the equipment. The average sound level of the construction activity

also depends upon the duration that the equipment operates and the intensity of the construction during the time period.

Noise generated by construction equipment will occur with varying intensities and durations during the various phases of construction. Construction equipment anticipated to be used during construction activities include loaders, trucks, backhoes, pavers, compactors, generators, and bulldozers. The one-hour average noise level during these construction activities typically ranges up to approximately 75 dB to 80 dB at 50 feet from the closest construction work area. The closest residences are located approximately 500 feet or more from the closest onsite construction area. At this distance the one-hour average noise level would be approximately 60 dB or less (Dudek & Associates 2003). All construction activity will be limited to the hours of 7 a.m. to 5 p.m. Monday through Friday, and 8 a.m. to 5 p.m. on Saturday. The construction noise would comply with the City of Carlsbad's construction noise criteria. Therefore, onsite construction-related noise would be less than significant.

Up to 10 workers would be employed during construction. A total of approximately 2 truck trips per day to deliver heavy equipment or materials are anticipated to occur over the total construction period. The traffic would utilize Avenida Encinas between the project site and Palomar Airport Road. Construction traffic noise would generate a noise level of less than 55 dB CNEL at a distance of 50 feet from the road (Dudek & Associates 2003). This noise level would result in a less than significant noise impact.

Operational Noise

The proposed project would upgrade existing facilities with new mechanical equipment as well as construct new facilities within the boundaries of the existing EWPCF. Several of the facility improvements would generate noise, including the Alternative Fuel system, gas conditioning system, and catalyst upgrades. Proposed modifications would not generate significantly different noise levels than are currently produced at the existing facility.

Noise sources from Phase 1 would consist primarily of additional pumps that would be used to circulate the biofuel. These small 20 horsepower (hp) pumps with VFDs each has a noise profile of 65 dB at 5 feet. Given the existing noise footprint, and existing VFD pumps at the EWPCF, the additional noise footprint is very small. The Alternative Fuel system implemented during Phase 1 will involve delivery of organic waste which will require between 4 and 18 trucks per day. These truck trips would be spread throughout the day and would generate a noise level of less than 55 dB CNEL, which is below existing community noise exposure levels. Therefore, additional truck traffic associated with the Alternative Fuel system is not anticipated to add significant new noise to existing operational and ambient noise levels.

Gas conditioning and catalyst upgrades implemented during Phase 2 would include several pieces of mechanical equipment that are typically skid mounted. These skids will be equipped with noise abatement and noise attenuation features as standard equipment. Additionally, the engine exhaust noise would decrease with installation of

the proposed catalysts. These new facilities would not increase noise levels beyond existing conditions.

There is no significant change with respect to noise with implementation of Phases 3 and 4 except for additional engine operating hours, which would not generate significantly different noise levels than are currently generated during operations.

The proposed modifications that are noise generating would occur primarily within the interior of the existing facility site and largely in the eastern portion of the facility, closest to Interstate 5, where greatest traffic noise levels are generated, and where additional noise generation would be attenuated.

It can be concluded that the noise associated with the facility improvements would not noticeably increase the ambient noise level within or beyond the EWPCF property boundaries or generate noise levels in excess of the City's noise criteria. Thus, the operational noise impact is considered less than significant.

e) The project is located 2.25 miles to the west of McClellan-Palomar Airport. The project involves improvements to the existing EWPCF and would not expose people to noise associated with the Palomar Airport. Based on the *McClellan-Palomar Airport Comprehensive Land Use Plan* (SANDAG 1994), EWPCF is located within the 60 dB CNEL noise contour. According to Figure 3 of the Comprehensive Land Use Plan, although the EWPCF is not specifically identified, office buildings and commercial industrial uses are shown, and both would be compatible with the 60 dB CNEL noise level. The Plan also describes industrial and commercial uses as compatible with these airport noise levels.

Site noise measurements document noise levels between 49 and 67 CNEL along the property line. Given existing noise conditions expected on a daily basis in the vicinity of the EWPCF, additional noise from the proposed expansion project combined with the adjacent freeway and airport operations would not expose people residing and working in the project area to excessive noise levels.

f) The project is not located in the vicinity of a private airstrip. There would be no impact.

Mitigation Measures

No mitigation measures are necessary related to noise.

4.1.13 POPULATION AND HOUSING

Would the proposed project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) The proposed project would not include the construction of new homes or businesses. The project consists of energy efficiency improvements at the EWPCF for enhanced operation and reduced energy use. The proposed project will not directly or indirectly induce substantial population growth and there would be no impact.

b, c) The proposed project will be constructed within the existing EWPCF parcel and will therefore not require additional land or impact existing housing conditions. There will no impacts.

Mitigation Measures

No mitigation measures are necessary related to population and housing.

4.1.14 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

a) The proposed project consists of energy efficiency upgrades at the existing EWPCF and Implementation of the project is not forecast to change land uses, increase the number of residential units, cause an increase in population or otherwise create activities that would increase demand for public services beyond that anticipated in the existing General Plan. Overall levels of public services will be increased based upon the future population and associated public services demands. As this project will have no population inducing impacts, this project has no potential to impact the need or demand for schools, parks, and other public facilities such as libraries.

Project facilities will be required to meet or exceed the minimum standards for the applicable building codes by state law and all local fire ordinances will be followed in design, construction and operation of the proposed project facilities. No potential for any significant demand for fire protection services is identified. The type of facilities being proposed do not have a potential to create new demand for police services and the existing EWPCF has safety features in place, including controlled site access, to prevent illegal trespass to the facilities. No potential for any significant demand for police protection services is identified.

Potentially increased road use resulting from construction activities would be temporary and would not result in substantial impacts to public services.

Mitigation Measures

No mitigation measures are necessary related to public services.

4.1.15 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a, b) The proposed project would not increase the use of existing parks or recreational facilities, and would not introduce new housing or population that would require use of such facilities. The project does not propose recreational facilities or require the construction or expansion of recreational facilities. Accordingly, there would be no recreation-related impacts.

Mitigation Measures

No mitigation measures are necessary related to recreation.

4.1.16 TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

The City of Carlsbad monitors traffic patterns throughout the City of Carlsbad, most recently as part of the 2012 Growth Management Plan Traffic Monitoring Program. As part of this program the City identifies and monitors 49 key intersections and 27 key mid-block roadway segments. Several of the intersections that could be affected by the project were included in the 2012 Growth Management Plan. The City of Carlsbad analyzed peak morning (6 to 9 am) and peak evening (3:30 to 6:30 pm) intersection operations using the Intersection Capacity Utilization Method for signalized intersections.

Traffic is typically measured as a ratio between volume of traffic and roadway capacity, level-of-service (LOS).

- LOS A generally represents free-flow conditions. Traffic flows at or above the posted speed limit and motorists can easily move between lanes.
- LOS B has generally free flow conditions with traffic flow at or above the speed limit but the ability to move between lanes is slightly restricted.
- LOS C represents traffic at or near free flow conditions but the ability to move between lanes is noticeably restricted.
- LOS D has traffic flows slightly below the speed limit and the ability to move between lanes is noticeably restricted.
- LOS E is traffic at roadway capacity. Flow is irregular and speed varies, difficultly in changing lanes.
- LOS F is a breakdown in traffic low with very slow vehicular movement.

The City of Carlsbad considers LOS D or better acceptable for intersection operations during the morning and evening peak periods.

Construction related traffic, employee, and FOG deliveries would access the project site via I-5, Palomar Airport Road, and Avenida Encinas. Some construction workers and employees may access the site via Poinsettia Lane and Avenida Encinas, but this route is undesirable for trucks as it is further from the freeway and traverses a more heavily trafficked commercial area.

The following information, from the 2012 Growth Management Plan gives an overview of existing traffic conditions in the project area.

PALOMAR AIRPORT ROAD/AVENIDA ENCINAS INTERSECTION

	LOS	Left turn volume Palomar Airport to Avenida Encinas (1 hour, passenger car equivalents)	Right turn volume Encinas to Palomar Airport Road (1 hour, passenger car equivalents)
AM Peak Hour	A	278	88
PM Peak Hour	B	217	356

I-5 SOUTHBOUND RAMP/PALOMAR AIRPORT ROAD

	LOS	Right turn volume I-5 Southbound ramp to Palomar Airport Road (1 hour, passenger car equivalents)	Left turn volume Palomar Airport Road to I-5 Northbound (1 hour, passenger car equivalents)
AM Peak Hour	A	314	71
PM Peak Hour	A	189	213

I-5 NORTHBOUND RAMP/PALOMAR AIRPORT ROAD

	LOS	Left turn volume I-5 Northbound ramp to Palomar Airport Road (1 hour, passenger car equivalents)	Right turn volume Palomar Airport Road to I-5 Southbound (1 hour, passenger car equivalents)
AM Peak Hour	B	167	114
PM Peak Hour	B	108	246

POINSETTIA LAND/AVENIDA ENCINAS

	LOS	Right turn volume Poinsettia Lane to Avenida Encinas (1 hour, passenger car equivalents)	Left turn volume Avenida Encinas to Poinsettia Lane (1 hour, passenger car equivalents)
AM Peak Hour	A	228	153
PM Peak Hour	B	214	202

a) The construction duration and construction traffic for each project phase is shown below. During construction, traffic would be generated by construction crews and equipment/material deliveries. It is anticipated that during the most extensive phase of construction, Phase 2, approximately 8 workers would be employed onsite and that approximately two truck trips per day would be required for delivery of equipment, materials and removal. All construction equipment, vehicles, personnel and material staging areas would be accommodated within the property lines of the EWPCF. Access to the site would occur via I-5 on the east and local access is from Palomar Airport Road on the north, and Avenida Encina on the west.

Phase	Duration	Construction Trips (maximum trips per day)
1	9 months	12 (4 worker vehicles, two trips a day, 2 trucks deliveries there and back)
2	9 months	14 (5 worker vehicles, two trips a day, 2 truck deliveries there and back)
3 and 4	9 months	12 (4 worker vehicles, two trips a day, 2 truck deliveries there and back)

Based on the traffic analysis performed as part of the 2012 Growth Management Plan, the addition of temporary construction related traffic (minor additional truck traffic and up to 10 construction employee trips per day) to the surrounding street system would not cause an intersection or street segment LOS to decrease to worse than LOS D during peak hour and therefore would have a less than significant impact. Currently all intersections that could be affected operate at LOS B or better during the peak hour. Construction deliveries would be spread throughout the day.

During operations, the Alternative Fuel component of the project is expected to result in a maximum of 13 deliveries/ 26 truck trips per day; the number of deliveries will be market driven and, as a result, fewer trips are possible. Under current operations there are between 1 to 3 truck trips to the site to remove biosolids. Based on the traffic analysis performed for the 2012 Growth Management Plan, the addition of up to 13 truck trips to the surrounding street system would not cause an intersection or street segment LOS to decrease to worse than LOS D and therefore would have a less than significant impact. With implementation of all phases there would be approximately 13 deliveries/26 truck trips and one additional site worker. Currently affected intersections and turning movements have volumes of 88 passenger car equivalents to 356 passenger car equivalents during the peak hour. The addition of 26 truck trips and 2 employee trips, spread throughout the day, will not significantly affect traffic operations.

b) Short-term and limited construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to affect the LOS or vehicle to congestion ratio on study area roadways. Long-term operating traffic would be minor, up to 26 truck trips and one new employee.

c) The proposed project does not include any aviation components. It would not, therefore, result in a change of air traffic patterns or result in substantial safety risks.

d) The project would not involve the alteration of existing roadways nor would it require incompatible vehicles access. Vehicles used during construction would be driven to the site and away from the site pursuant to state transportation laws. Any equipment or vehicles not designated as adequate for public roadway travel would be transported to the site via a trailer unit. FOG deliveries would be directed to access the site via Interstate 5 and Palomar Airport Road (rather than Poinsettia Lane).

e) The proposed project would involve the construction of Alternative Fuel facilities at the EWPCF site as well as modifications to the gas conditioning system and installation of a fifth engine inside the existing cogeneration building. Proposed facilities have been designed to satisfy the emergency requirements of the Fire and Police departments. Therefore, access to and from the treatment facilities in the case of an emergency would not be impacted by project implementation.

f) The proposed project would consist of modifications to existing facilities and construction of new facilities within the existing EWPCF plant site. Modifications would not affect planned alternative transportation routes or modes or conflict with adopted policies, plans and programs supporting alternative transportation.

Mitigation Measures

No mitigation measures are necessary related to traffic/transportation.

4.1.17 UTILITIES AND SERVICES SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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 projects projected demand in addition to the providers existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

a, b) The proposed project consists of energy efficiency upgrades at the existing EWPCF and would not generate any wastewater. The proposed project would therefore have no impact on wastewater treatment requirements. As implementation of the project will not have population-inducing impacts, it will not require or result in the construction of new or expansion of existing water or wastewater treatment facilities.

c) The proposed project would not substantially alter existing drainage patterns or increase stormwater runoff and would therefore not result in a need for new or expansion of existing storm water drainage facilities. There would be no impact.

d) The proposed project will not result in the need for new or expanded water entitlements. The project does not involve new housing or induce population growth that could result in increased water demands.

e) The proposed project would not generate any wastewater or indirectly result in increased wastewater production. The EWA is the wastewater treatment provider in the area and will be the owner and operator of the proposed facilities.

f,g) The proposed project would not have substantial solid waste disposal needs. The project includes an Alternative Fuel system at the EWPCF where grease trap waste and food wastes would be converted into energy. As a result, the project will help divert solid waste from disposal.

Minor amounts of solid waste are anticipated to be generated during construction activities. Disposal of this waste would occur in accordance with federal, state, and local regulations. Disposal would occur at permitted landfills, and construction contractors would be encouraged to recycle construction materials, as feasible.

4.2 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

The proposed project consists of the installation and operation of energy efficiency improvements within the existing EWPCF site. The existing facility is located within a developed and paved 25-acre parcel; the proposed project will be contained within the existing facility footprint.

a) The proposed project will be located within an already developed area where biological resource values are extremely limited, and where there is no suitable habitat for sensitive species. The project site lies within an area designated under the North County Multiple Habitat Conservation Program, as developed, thereby carrying no habitat or

conservation value. The project site also lies outside of the boundaries of the preserve system established through the City of Carlsbad's Habitat Management Plan. As a result, the proposed project will not result in disturbance to local natural systems or biological resources, including through habitat impairment or fragmentation. The project would not eliminate important examples of California history or prehistory.

b) As revealed in the previous discussion, the proposed project would have no effect on aesthetics, agricultural resources, biological resources, cultural resources, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, or recreation. In the absence of project-related impacts, incremental accumulation of effects in conjunction with past, surrounding current and probable future projects to these environmental resources would not occur.

Air Quality and Greenhouse Gases

The proposed project would increase air emissions, but emissions would be below significance thresholds. The proposed project will reduce indirect GHG emissions (natural gas and electricity purchased from SDG&E) while increasing use of biofuel.

Geology and Soils

The proposed project is located in southern California, a seismically active area. Appropriate mitigation measures have been proposed to avoid and lessen seismic hazards.

Hazards and Hazardous Materials

The project will involve use of petroleum products, adhesives, solvents, and degreasers during the construction phase. The project will involve the handling of FOG during operations. Mitigation measures to ensure appropriate handling of hazardous materials are included with the project and will avoid significant impacts.

Noise

The proposed project would increase noise, but noise associated with the facility improvements would not noticeably increase the ambient noise level within or beyond the EWPCF property boundaries or generate noise levels in excess of the City of Carlsbad noise criteria.

Transportation/Traffic

The proposed project would add temporary construction traffic and would add 26 truck trips during operations. These additions are minor in comparison to roadway capacity and would not cause LOS to drop below LOS D.

Utilities and Service Systems

Minor amounts of solid waste are anticipated to be generated during construction activities. Disposal of this waste would occur in accordance with federal, state, and local regulations. Disposal would occur at permitted landfills, and construction contractors will be encouraged to recycle construction materials as feasible.

c) The proposed project would not have environmental effects that would cause substantial adverse impacts on human beings, either directly or indirectly. Implementation of recommended mitigation measures will ensure safety of the public from potential project impacts. Construction-related impacts, primarily air, transportation and traffic, and noise would be minor and temporary. There would be no long-term adverse significant impacts.

Section 5: Mitigation Monitoring and Reporting Plan

EWA is the lead agency responsible for authorizing construction of the Energy Projects. The MND prepared for the project provides analysis of the environmental effects resulting from the construction and operation of the project.

After considering the environmental analysis provided in the MND and public comments on the MND, EWA will determine whether or not to approve the project.

Mitigation measures have been included into the project to reduce or avoid potential environmental impacts associated with project construction and operation. Section 21081.6 of the California Public Resources Code requires a lead or responsible agency that approves or carries out a project where an MND has identified measures to mitigate significant environmental effects to adopt a "reporting monitoring program for adopted or required changes to mitigate or avoid significant environmental effects." In accordance with Section 21081.6 of the Public Resources Code, the Mitigation Monitoring and Reporting Plan (MMRP) has been prepared.

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Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
Air Quality (recommended mitigation measures)					
AQ1. All unpaved construction areas shall be sprinkled with water or other acceptable San Diego APCD dust control agents during dust-generating activities to reduce dust emissions. Additional watering or acceptable APCD dust control agents shall be applied during dry weather or windy days until dust emissions are not visible.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	
AQ2. Trucks hauling dirt and debris shall be covered to reduce windblown dust and spills.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
AQ3. On dry days, dirt or debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	
AQ4. On-site stockpiles of excavated material shall be covered or watered.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
AQ5. Abide by all conditions of approval for dust control required by the San Diego APCD.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	
AQ6. Use low pollutant-emitting construction equipment.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
AQ7. Equip construction equipment with prechamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of nitrogen oxide, to the extent available and feasible. CARB certified stationary equipment shall be used.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	
AQ8. Use electrical construction equipment, to the extent feasible.	Initial Study	This shall be implemented during construction.	EWA and project contractor	This measure shall be incorporated into the construction contract. Verification of implementation shall be based on field inspections by EWA inspection personnel that verify the measure is being implemented during construction. Field notes documenting verification shall be retained in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
Geology and Soils					
GS1. The structural design and construction of new structures will, at a minimum, be in accordance with the requirements of the most recent Uniform Building Code and California Building Code including the latest supplements for Groundshaking Zone 4 as described in the 2010 California Building Code and all other applicable City, County, State and Federal laws, regulations and guidelines.	Initial Study	This shall be implemented during design and construction.	EWA, project designer and project contractor	A copy or copies of the design plans shall be retained in the project file. EWA field inspectors shall verify that the contractor has installed the structural design measures in accordance with the design plan. A copy of field inspection reports shall be retained in the project file.	
Hazards and Hazardous Materials					
HAZ1. All spills or leakage of hazardous wastes during construction shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. All contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment.	Initial Study	This shall be implemented during construction.	EWA and project contractor	Inspections during construction shall include verification that measures to control potential for accidental releases are being implemented. A copy of inspection reports shall be retained in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
HAZ2. Construction equipment shall be regularly inspected for leaks.	Initial Study	This shall be implemented during construction.	EWA and project contractor	Inspections during construction shall include verification that measures to control potential for accidental releases are being implemented. A copy of inspection reports shall be retained in the project file.	
HAZ3. A prevention and response plan shall be prepared that will incorporate best management practices (BMPs) designed to minimize the potential for accidental release of hazardous materials or wastes. The developed plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material, and assess potential exposure pathways.	Initial Study	This shall be implemented prior to construction and during operation.	EWA	A copy of the spill prevention and response plan shall be included in the project file.	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status/Date/Initials
HAZ4. Prior to installing any above ground structures or facilities within the public airport restricted height area, a final determination will be made on the acceptability of such facilities within this area. If it is not permitted, such structures or facilities will be modified to comply with given restrictions. Any exceptions will be obtained in accordance with Federal Aviation Administration regulations.	Initial Study	This shall be implemented during design.	EWA and project designer	A copy or copies of the design plans shall be retained in the project file. Copy of correspondence with Federal Aviation Administration regarding project design.	

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Appendix A

Air Quality Technical Report

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Encina Water Pollution Control Facility

Air Quality
Alternative Fuel Project

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TABLES

ATTACHMENTS

1. INTRODUCTION

The Energy and Emissions Strategic Plan, dated April 2011 by Kennedy/Jenks Consultants, establishes Encina Wastewater Authority's (EWA) strategy for the production, conservation, and use of three (3) distinct and operationally interrelated forms of energy utilized at the Encina Water Pollution Control Facility (EWPCF): electricity; gas; and heat. A primary objective of the Energy and Emissions Strategic Plan is to provide EWA with a plan for achieving targeted energy self-generation goals of 95 percent of the total EWPCF electrical needs and 50 percent of the total EWPCF gas needs by the year 2020. These goals will be achieved through demand reduction and increased use of alternative energy.

The proposed project aims to implement the recommended alternative power technology identified in the Energy and Emissions Strategic Plan in order to achieve the targeted energy self-generation goals. The proposed project includes:

- enhancing EWPCF biogas production through implementation of an Alternative Fuel (AF) system,
- upgrades to the existing cogeneration engines to reduce emission rates allowing increased run times,
- installation of additional cogeneration engines, when needed, to utilize increasing biogas quantities, and
- demand reduction through retrofitting existing constant speed electric motors with VFDs and other similar measures.

1.1.1 Project Phasing and Construction Timeframe

The projects are proposed to be implemented in four phases:

- Phase 1: AF system
- Phase 2: Gas Conditioning and catalysts
- Phase 3: 5th Cogeneration Engine
- Phase 4: EEM improvements

Construction of Phase 1 is anticipated to commence in September 2013 and be completed in May 2014. Construction of Phase 2 is anticipated to begin in mid-2018 and be completed in 2019. Phase 3 construction is anticipated to commence in 2022, ending in 2023. Phase 4, EEM improvements, will be completed by 2020 and will consist of a series of relatively small projects.

Upon completion, the proposed project is estimated to reduce electrical energy usage at the EWPCF by 1.7 million kw-hrs/year. Table 1shows baseline projected energy usage over time, including electricity purchased from SDG&E, purchased natural gas, and on-site energy production without the proposed project. Table 2 shows projected energy purchase (electricity and natural gas) anticipated over time as the different phases of the project are completed and brought on-line.

Table 1: Baseline Energy Usage (Proposed Project is Not Constructed)

Year	Total EWPCF Demand (kw-hr/year)	SDG&E Electrical Purchase (kw-hr/year)	Biogas Production (therms/year)	Natural Gas Purchases (therms/year)	Self- Production (kw-hr/year)
2010	17,300,000	4,498,858	1,260,700	620,911	12,868,209
2015	20,600,000	7,790,657	1,687,100	549,137	12,868,209
2020	23,950,000	11,082,455	1,973,700	383,168	12,868,209
2025	25,933,000	14,374,254	2,260,300	273,774	12,868,209
2030	27,950,000	15,047,312	2,304,700	281,053	12,868,209

Reference: Encina Pro forma Baseline CEQA version April 18, 2013

Table 2: Estimated Energy Usage During and Proceeding Project Construction

Year	Total EWPCF Demand (kw-hr/year)	SDG&E Electrical Purchase (kw-hr/year)	Biogas Production (therms/year)	Natural Gas Purchases (therms/year)	Self- Production (kw-hr/year)
2010	17,300,000	4,498,858	1,260,700	620,911	12,868,209
2015	18,950,000	6,081,791	2,078,563	202,570	12,868,209
2020	22,250,000	0	2,626,138	704,000	22,250,000
2025	24,233,000	317,000	3,173,713	431,000	23,916,000
2030	26,215,000	2,299,000	3,479,088	281,053	23,916,000

Reference: Encina Pro forma Baseline CEQA version April 18, 2013

The air quality analyses of this project will focus on the impacts associated with the alternative fuel project including the four phases described above as well as the anticipated increased wastewater flows/energy use during the project period.

2. AIR QUALITY BACKGROUND

2.1 STATUS (ATTAINMENT, NON-ATTAINMENT, OR UNCLASSIFIED)

The EPA designates all areas of the United States as having air quality better than the National Ambient Air Quality Standards (NAAQS) ("attainment"), worse than ("non-attainment") the NAAQS, or "unclassified" in areas where insufficient data exist. A non-attainment designation means that a primary NAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. Pollutants in an area are often designated as unclassified when there is a lack of data for the EPA to form a basis of attainment status. Just as the EPA designates air basins as being in "attainment" or "non-attainment" of the NAAQS, the California Air Resource Board (ARB) designates areas of the State as either in attainment or non-attainment of the CAAQS. An area is deemed "non-attainment" if a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant (County 2007). Table 3 presents a summary of the Attainment Status by Pollutant for the San Diego County Air Basin. Table 4 presents a complete listing of the current attainments status by pollutant for San Diego County.

Table 3: San Diego County Air Basin – Attainment Status by Pollutant-Summary

Pollutant	Attainment Status
Carbon monoxide	Attainment
Ozone (O_3)	Non-attainment Federal
Oxides of nitrogen (NO_x)	Attainment State, Maintenance Federal
$PM_{2.5}$	Non-attainment State
PM_{10}	Non-attainment State
Reactive Organic Gases (ROG)	Unclassified
Sulfur Dioxide (SO_2)	Attainment
Volatile Organic Compounds (VOC)	Unclassified

Reference:
County of San Diego Guidelines for Determining Significance and Report Format and Content – Air Quality (Land Use and Environment Group, Department of Planning and Land Use Department of Public Works) March 19, 2007 (Attachment 1)

Table 4: San Diego County Air Basin – Attainment Status by Pollutant-Complete Listing

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Non-attainment	No Federal Standard
	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 Hour	Attainment	Maintenance Area[3]
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Unclassified	No Federal Standard

Notes

[1] Data reflects status as of March 19, 2007.

[2] Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

[3] Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated non-attainment pursuant to the CAA Amendments of the 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

2.2 THRESHOLD OF SIGNIFICANCE FOR THE AREA (IF APPLICABLE)

2.2.1 Operational, Construction & Mobile Emission Thresholds:

Land-use development projects primarily result in emissions from construction activities and the traffic associated with daily operation of a proposed project. The San Diego APCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the district does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are

exceeded, an AQIA must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate the increased emissions which would be discharged to the San Diego Air Basin from proposed land development projects (County 2007). San Diego APCD provides the following table (Table 5) as the "significance threshold" levels for new or upgraded projects.

Table 5: Construction and Operational Screening-Level Thresholds (Significance Levels)

Pollutant	Project Construction (#/day)[1]	Project Operation (tons/yr)
Carbon Monoxide (CO)	550	100
Volatile Organic Compounds (VOC)	75	13.7
Nitrogen Oxides (NO_x)	250	40
Sulfur Dioxide (SO_x)	250	40
Particulates (PM_{10})	100	15
Particulates ($PM_{2.5}$)	55	10
CO_2 (eq)[2]	---	10,000

Notes

[1] SDAPCD does not assign a quantitative threshold for construction or mobile source-related impacts.

[2] SCAQMD significance threshold

Rule 1200 (Toxic Air Contaminants – New Source Review). This Rule identifies standards and procedures for health risk assessments. Cancer risk criteria are based on whether the proposed project elements are considered to be Best Available Control Technology for Toxics (T-BACT). If T-BACT is applied to an emission unit, the maximum incremental cancer risk at every receptor location cannot exceed 10 in 1 million. If T-BACT is not applied, the maximum cancer risk cannot exceed 1 in 1 million. Installation of the new equipment will be evaluated during the permitting process on a Phase by Phase basis to demonstrate the project elements are consistent with T-BACT requirements. Additionally, the increase in the total acute and chronic non-cancer health hazard index at every receptor cannot be greater than 1 as result of a new project.

3. SUMMARY OF CONSTRUCTION AND EMISSIONS CALCULATIONS

3.1 DESCRIPTION OF CONSTRUCTION ACTIVITIES

Each of the three phases of construction will span an approximately 9-month period. Phase 1 is scheduled for 2014, Phase 2 for 2018-2019 and Phase 3 2022-2023. The estimated construction related emissions associated with each phase are described below:

Phase 1 – Alternative Fuel Receiving, Storage and Distribution (9 months)

During this nine month period, equipment and personnel will be on site to remove existing asphalt, concrete, and soil in preparation for the new receiving, storage, and pumping facilities. During this period, small amounts of excavation, concrete placement, equipment placement, and mechanical interconnection activities will be completed. Approximately 2 to 8 personnel will be on site during this construction phase.

Phase 2 – Gas Conditioning and Catalyst Installation (9 months)

During this nine month period, equipment and personnel will be on site to remove existing asphalt, concrete, and soil in preparation for new digester gas conditioning facilities and installation of the catalyst equipment on the four existing engines. During this period, small amounts of excavation, concrete placement, equipment placement, and mechanical interconnection activities will be completed. Approximately 3 to 10 personnel will be on site during this construction phase.

Phase 3 – Engine #5 Installation (9 months)

During this nine month period, equipment and personnel will be on site to install the fifth engine within the existing cogeneration building. During this period, equipment placement and mechanical interconnection activities will be completed. The foundation and support interconnections were previously installed as part of the original cogeneration expansion project. Approximately 3 to 5 personnel will be on site during this construction phase.

3.2 CONSTRUCTION RELATED EMISSIONS

During construction, temporary emissions will be generated by construction equipment used to build the proposed project elements. Construction equipment emissions were estimated by using a fleet of equipment (as provided in Attachment 2) anticipated to be used during construction activities: loaders, trucks, backhoes, pavers, compactors, generators, and bulldozers. It is anticipated that most of the heavy-duty equipment will be powered by diesel fuel. Diesel-powered equipment emits more nitrogen dioxide, sulfur dioxide, and PM_{10} than gasoline-powered equipment. However, gasoline equipment emits more hydrocarbons and CO. Minimal soil movement is anticipated during the three construction phases. Dust suppression will be maintained in the disturbed areas. Grading may disturb surface soils and cause a discharge of particulates into the air.

The construction equipment spreadsheet (CY 2014) from the South Coast Air Quality Management District's (SCAQMD) *CEQA Air Quality Handbook* was used to estimate the construction related emission during each phase of construction. Tables 6, 7, and 8 provide a summary of each construction phase. Detailed worksheets are provided in Attachment 2.

Table 6: Phase 1 – Summary of Construction Emissions

(#'s per project over a nine month period)

Emission Source	Reactive Hydrocarbon	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide (eq)
Construction Equipment	8.25	28.8	67.6	0.01	2.8	9,155
Deliveries	19	180	417	45	26	22,308
Worker Vehicle	63.5	804	81.7	0	0	40,155
TOTAL (#)	**90.75**	**1012.8**	**566.3**	**45**	**28.8**	**71,618**

Notes

Total assumes all construction related activities are occurring over entire nine month period

Reference

Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

Table 7: Phase 2 – Summary of Construction Emissions

(#'s per project over a nine month period)

Emission Source	Reactive Hydrocarbon	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide (eq)
Construction Equipment	11.1	38.6	90.9	0.13	3.7	12,490
Deliveries	32	302.4	700	75.6	43.7	37,500
Worker Vehicle	90	1,142	115.7	0	0	56,900
TOTAL (#)	**133.1**	**1,453**	**906.6**	**75.73**	**47.4**	**106,890**

Notes

Total assumes all construction related activities are occurring over entire nine month period

Reference

Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

Table 8: Phase 3 – Summary of Construction Emissions

(# per project over a nine month period)

Emission Source	Reactive Hydrocarbon	Carbon Monoxide	Oxides of Nitrogen	Sulfur Dioxide	Particulates	Carbon Dioxide (eq)
Construction Equipment	0.6	2.2	5.3	0.007	0.2	1,620
Deliveries	3.8	36	83.4	9	5.2	4,460
Worker Vehicle	71.9	912.2	92.6	0	0	45,510
TOTAL (#)	**76.3**	**950.4**	**181.3**	**9**	**5.4**	**51,590**

Notes

Total assumes all construction related activities are occurring over entire nine month period

Reference

Estimations of Construction Related Emissions using South Coast Air Quality Management District CEQA Assessment Guide 2003 Excel Spreadsheet for Mobile Construction Related Emission for CY 2014.

4. EMISSIONS STATEMENT FOR FUTURE OPERATIONS OF EWPCF WITH ALTERNATIVE FUEL ADDITION

4.1 PHASE 1: (2014-2019)

Alternative fuel will be added at an estimated rate of 15,000 gallons per day, seven days per week (5.475 million gallons per year). Using a conversion rate of 13,000 cubic feet of digester gas per 1,000 gallons of alternative fuel, it is estimate that the Phase 1 period (2014-2019) will produce 194,800 cubic feet of digester gas per day (71.1 million cubic feet per year). The heating value of the digester is approximately 60 percent of natural gas; therefore, 1.6 cubic feet of digester gas will be required to offset one cubic foot of natural gas. Based on current APCD air permit conditions allowing the EWPCF to operate as a non-Title V facility, the additional biogas will offset natural gas currently being used in the sludge dryer. Additional digester gas may be used to offset natural gas for cogeneration during the Phase 1 period in accordance with existing APCD permit requirements. The existing emergency digester gas flare permit may require an amendment during the Phase 1 period. Table 9 provides an estimated annual gas production and utilization summary comparing current and post Phase 1 construction. Table 10 provides a comparison of the emissions associated with the Phase 1 construction project.

Table 9: Phase 1 – Summary and Comparison of Annual Operation Gas Utilization – Cogeneration and Biosolids Dryer (2012 and Phase 1)

Process Unit	Current- 2012 (mmcft)	Phase 1 (mmcft)	Change (mmcft)
Cogeneration (Digester Gas)	224	224[(1)]	0
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Digester Gas)	5.4	95	+89.6
Biosolids Dryer (Natural Gas)	64.8	20.2	-44.6
Flare (Digester Gas)	0	0[(2)]	0

Reference: Encina Pro forma Baseline CEQA version April 18, 2013

(1) Cogeneration emissions will not change as part of this Phase 1. Operations will remain in accordance with current APCD permit conditions.

(2) AF utilization and deliveries will be monitored and adjusted to minimize potential flaring of excess gas.

mmcft million standard cubic feet of gas

Table 10: Phase 1 – Summary of Annual Operation Emissions (Existing, Future after upgrade, Net Increase)

Emission Source	Volatile Organic Hydrocarbon (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (Mtons/yr)
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosolids Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,605
Total	**15.6**	**93.9**	**14.2**	**0.3**	**3.6**	**10,639**
Phase 1 (2014 – 2019)						
Cogeneration w/ Natural Gas Supplement	16.2	90.8	13.1	0.2	3.2	7,033
Biosolids Dryer Digester & Natural Gas	1.7	8.0	3.1	0.3	4.5	4,054
Total	**17.9**	**98.8**	**16.2**	**0.5**	**7.7**	**11,087**
Net Change (tons/yr)	**0.95**	**4.9**	**0.9**	**0.6**	**2.6**	**484**
SIGNIFICANCE THRESHOLD TOTAL	**13.7**	**100**	**40.0**	**40.0**	**15.0**	**10,000**
% OF SIGNIFICANCE THRESHOLD	**7%**	**4.9%**	**2.5%**	**1.5%**	**17%**	**4.8%**

4.2 PHASE 2: (2019-2023)

Alternative Fuel will be added at an estimated rate of 25,000 gallons per day, seven days per week (9.1 million gallons per year). Using a conversion rate of 13,000 cubic feet of digester gas per 1,000 gallons of Alternative Fuel, it is estimated that the Phase 2 period (2017-2024) will produce 325,000 cubic feet of digester gas per day (118 million cubic feet per year).

The installation of alternative biofuel gas conditioning system and catalyst on each of the four cogeneration engines, in conjunction with modification to the existing APCD permits, will allow additional operational flexibility and increase runtime on the cogeneration engines. During the Phase 2 period, three of the four engines will operate at any one time. Table 11 provides an estimated annual gas production and utilization summary comparing current and post Phase 2 construction.

Table 11: Phase 2 – Summary of Annual Operation Gas Utilization – Cogeneration and Biosolids Dryer

Process Unit	Current (mmcft)	Phase 2 (mmcft)	Change (mmcft)
Cogeneration (Digester Gas)	224	395.7	+171.7
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Digester Gas)	5.4	36.3	+30.9
Biosolids Dryer (Natural Gas)	64.8	70.4	+5.6
Flare (Digester Gas)	0	0(1)	0

Reference: Encina Pro forma Baseline CEQA version April 18, 2013

(1) AF utilization and deliveries will be monitored and adjusted to minimize potential flaring of excess gas.

mmcft million standard cubic feet of gas

The combination of biofuel gas conditioning and catalyst will reduce the priority pollutants associated with the internal combustion engines as illustrated in Table 12.

Table 12: Cogeneration Engines Emission Factors Current and with Gas Conditioning and Catalyst

Pollutant	Current[1] (#/mmcf digester gas)	Gas Conditioning and Catalyst[2] (#/mmcf digester gas)	% reduction
NO_x	110.51	110.51	0
CO	810.39	81.0	90
VOC	136.29	13.6	90
PM	27.6	27.6	0
SO_x	2	0.5	75

Notes

[1] Current Permit Conditions (CY 2012)

[2] Catalyst or Gas Conditioning Manufacturer's Specifications

Table 13 provides a comparative of the emissions associated with the Phase 2 construction project

Table 13: Phase 2 – Summary of Annual Operation Emissions (Existing, Future after upgrade, Net Increase)

Emission Source	Volatile Organic Carbon (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (Mtons/yr)
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosoilds Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,605
Total	**15.6**	**93.9**	**14.2**	**0.3**	**3.6**	**10,639**
Phase 2 (2019 – 2023)						
Cogeneration w/ Natural Gas Supplement	2.7	16.0	21.9	0.1	5.5	12425
Biosolids Dryer Digester & Natural Gas	0.8	5.7	2.8	0.1	1.9	4,872
Total	**3.5**	**21.7**	**24.7**	**0.2**	**7.4**	**17,297**
Net Change (tons/yr)	**-12.1**	**-72.2**	**10.5**	**-0.1**	**3.8**	**6,658**
SIGNIFICANCE THRESHOLD TOTAL	**13.7**	**100**	**40.0**	**40.0**	**15.0**	**10,000**
% OF SIGNIFICANCE THRESHOLD	**0%**	**0%**	**26%**	**0%**	**25%**	**66.6%**

4.3 PHASE 3: (2023-2030)

Alternative Fuel will be added at an estimated rate of 35,000 gallons per day, seven days a week (12.75 million gallons per year). Using a conversion rate of 13,000 cubic feet of digester gas per 1,000 gallons of Alternative Fuel, it is estimated that the Phase 3 period (2023-2030) will produce 455,000 cubic feet of digester gas per day (166 million cubic feet per year).

The installation of the fifth cogeneration engine with catalyst will require a permit for the fifth engine and overall permit modifications to allow four engines to operate at any one time with the fifth engine as standby/back-up. Table 14 provides an estimated annual gas production and utilization summary comparing current and post Phase 3 construction. Table 15 provides a comparative of the emissions associated with the Phase 3 construction project

Table 14: Phase 3 – Summary of Annual Operation Gas Utilization – Cogeneration and Biosolids Dryer

Process Unit	Current (mmcft)	Phase 3 (mmcft)	Change (mmcft)
Cogeneration (Digester Gas)	224	427	+203
Cogeneration (Natural Gas)	0	0	0
Biosolids dryer (Digester Gas)	5.4	106	+100.6
Biosolids Dryer (Natural Gas)	64.8	43.2	-21.6
Flare (Digester Gas)	0	0[(1)]	0

Reference: Encina Pro forma Baseline CEQA version April 18, 2013

[(1)] AF utilization and deliveries will be monitored and adjusted to minimize potential flaring of excess gas.

mmcft million standard cubic feet of gas

Table 15: Phase 3 – Summary of Annual Operation Emissions (Existing, Future after upgrade, Net Increase)

Emission Source	Volatile Organic Compounds (tons/yr)	Carbon Monoxide (tons/yr)	Oxides of Nitrogen (tons/yr)	Sulfur Dioxide (tons/yr)	Particulates (tons/yr)	Carbon Dioxide (eq) (Mtons/yr)
Current 2012:						
Cogeneration w/ Natural Gas Supplement	15.3	90.8	12.4	0.2	3.1	7,033
Biosolids Dryer Digester & Natural Gas	0.3	3.1	1.8	0.1	0.5	3,605
Total	**15.6**	**93.9**	**14.2**	**0.3**	**3.6**	**10,639**
Phase 3 (2023 – 2030)						
Cogeneration w/ Natural Gas Supplement	2.9	17.3	23.6	0.1	5.8	13,408
Biosolids Dryer Digester & Natural Gas	1.9	9.9	4.0	0.3	5.1	5,619
Total	**4.8**	**27.2**	**27.6**	**0.4**	**10.9**	**19,026**
Net Change (tons/yr)	**-10.8**	**-66.7**	**13.4**	**0.1**	**7.3**	**8,387**
SIGNIFICANCE THRESHOLD TOTAL	**13.7**	**100**	**40.0**	**40.0**	**15.0**	**10,000**
% OF SIGNIFICANCE THRESHOLD	**0%**	**0%**	**34%**	**0%**	**49%**	**84%**

5. AIR TOXICS DISCUSSION

The project will increase generation and subsequent use of bio-derived fuels through facility growth and the AF project. The increase in generation and use will increase the air toxic contaminates associated with Alternative Fuels. As part of each phase of the project, a Health Risk Assessment will be completed as part of the air permitting process to demonstrate compliance with Rule 1200. As part of the AQ Report, toxic emissions estimation was completed using the South Coast Air Quality Management District- Annual Air Emission Reporting tools. The default emission factors were used as a conservative approach. Potential toxic air contaminates may be reduced by the gas conditioning equipment. The benefits of the gas conditioning equipment have not been included in the following table. Table 16 provides a comparative summary of air toxics for each phase of the project.

Table 16: Air Toxics Contaminates Estimation by Phase (combined Cogeneration and Biosolids Drying)

Toxic Air Contaminate	Units	Current (2012)	Phase 1	Phase 2	Phase 3
Acetaldehyde	#/yr	7.340	7.894	12.914	14.041
Acrolien	#/yr	0.189	0.311	0.288	0.403
Ammonia	#/yr	1900	1426	2650	2483
Benzene	#/yr	0.407	0.668	0.619	0.865
1,3 Butadiene	#/yr	1.317	1.393	2.327	2.511
Carbon Tetrachloride	#/yr	2.688	2.844	4.748	5.124
Chloroform	#/yr	2.285	2.417	4.036	4.355
Ethylene Dichloride	#/yr	2.016	2.133	3.561	3.843
Formaldehyde	#/yr	26.400	28.435	46.422	50.512
Hexane	#/yr	0.323	0.530	0.490	0.686
Lead	#/yr	0.457	0.484	0.807	0.871
Methylene Chloride	#/yr	1.747	1.849	3.086	3.331
Perchloroethylene	#/yr	2.822	2.986	4.986	5.380
PHA	#/yr	0.028	0.046	0.042	0.059
Toluene	#/yr	1.860	3.053	2.827	3.954
Trichloroethylene	#/yr	2.419	2.559	4.274	4.611
Vinyl Chloride	#/yr	4.838	5.119	8.547	9.223
Xylenes	#/yr	1.383	2.269	2.102	2.939

6. GREENHOUSE GAS DISCUSSION

Assembly Bill 32, the California Global Warming Solutions Act of 2006 (AB 32; Statutes of 2006, chapter 488), creates a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions to 1990 levels by the year 2020 and to 80 percent below 1990 levels by 2050. Governor Schwarzenegger directed the California Air Resource Control Board (ARB) (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. ARB may consider different approaches that would achieve the objectives of the Executive Order. This could include increasing the target and accelerating and expanding the time frame based on a thorough assessment of technical feasibility, system reliability, cost, greenhouse gas emissions, environmental protection, and other relevant factors.

In its Climate Action Plan (June 2012) and associated Draft Guidelines for Determining Significance, Climate Change (June 2012) the County of San Diego establishes levels of significance for GHG emissions. These levels of significance apply to new net emissions, not existing emissions that are already included in other planning documents, including the County's General Plan. For stationary sources, including water and wastewater treatment plants, the level of significance is 10,000 metric tons of CO_2 equivalent per year. Phase 3 of the proposed project results in the greatest emission of annual CO_2 equivalent, with a total annual estimated emission increase above the baseline year of 8,387 CO_2 equivalent per year (see Table 15), 84 percent of the established level of significance.

EWA recently completed the calendar year (CY) 2011 California Emission Inventory for GHG. EWA, based on a cogeneration rated capacity in excess of 1.0 MW, has participated in the State of California program since 2008. The generation of biofuel is considered a biogenic renewable fuel and the increased biofuel use associated with the proposed project will reduce the use of natural gas as well as offset purchase of electricity from SDG&E, which is considered an indirect GHG emission. GHG emissions associated with biogenic (biogas) sources are classified as a renewable type activity and are recorded independently in the State of California database.

The proposed project will reduce the use of indirect GHG emissions (electricity purchased from SDG&E) as well as direct non-biogenic GHG emissions (natural gas), while increasing biogenic emissions (biofuel). Table 17 provides a comparative summary of biogenic and non-biogenic GHGs for each phase of the project. Attachment 5 provides the worksheets associated with the GHG analysis. In addition the net increase in annual CO_2 equivalent is less than the County of San Diego's established level of significance as defined in its Climate Action Plan. Thus, the proposed project will not have significant GHG impacts.

Table 17: Biogenic and Non-Biogenic Greenhouse Gases by Phase (combined Cogeneration and Biosolids Drying)

Greenhouse Gas	Units	Current (2012)	Phase 1	Phase 2	Phase 3
Biogenic (bio-fuel)	MT CO_2 eq/yr	7,203	10,016	13,565	16,736
Non-Biogenic (natural gas)	MT CO_2 eq/yr	3,429	1,072	3,736	2,293
Total	MT CO_2 eq/yr	10,639	11,087	17,297	19,026

7. CONCLUSIONS

Based on the analysis, project Phases 1 through 3 are below the levels of significance.

8. REFERENCES

Air Resources Control Board - State of California- Climate Action - Cal-eGGT Reporting Tools, 2013.

Climate Action Plan- San Diego County, California (June 2012)

County of San Diego, Guidelines for Determining Significance and Report Format and Content Requirements- Air Quality, Department of Planning and Land Use Department of Public works March 19, 2007.

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Greenhouse Gas Significance Threshold, South Coast Air Quality Management District, 2013.

San Diego County Greenhouse Gas Inventory, September 2008 - University of San Diego & Energy Policy Initiative Center.

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South Coast Air Quality Management District, CEQA Mobile Emissions Worksheets, CY 2013.

ATTACHMENT 1: COUNTY OF SAN DIEGO AIR QUALITY GUIDELINES FOR SIGNIFICANCE

2007

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE AND REPORT FORMAT AND CONTENT REQUIREMENTS

AIR QUALITY

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

March 19, 2007

APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the 19th day of March, 2007.

GARY PRYOR
Director of Planning and Land Use

JOHN SNYDER
Director of Public Works

Attest: ERIC GIBSON
Deputy Director of Planning and Land Use

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 19th day of March, 2007. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality, except any revisions to the Guidelines for Determining Significance presented in Chapter 4.0 must be approved by the Deputy CAO.

Approved, March 19, 2007

CHANDRA WALLAR
Deputy CAO

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE

AIR QUALITY

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

March 19, 2007

EXPLANATION

These Guidelines for Determining Significance for Air Quality and information presented herein shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally, (in the absence of substantial evidence to the contrary), an affirmative response to any one Guideline will mean the project will result in a significant effect, whereas effects that do not meet any of the Guidelines will normally be determined to be "less than significant." Section 15064(b) of the State CEQA Guidelines states:

> "The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

The intent of these Guidelines is to provide a consistent, objective and predictable evaluation of significant effects. These Guidelines are not binding on any decision-maker and do not substitute for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to modify these Guidelines in the event of scientific discovery or alterations in factual data that may alter the common application of a Guideline.

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List of Acronyms

APCD	Air Pollution Control District
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plans
ARB	California Air Resource Board
BACMs	Best Available Control Measures
BACT	Best Available Control Technology
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CALINE 4	California LINE Source Dispersion Model, Version 4
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CFCs	Chloroflourocarbons
CEIDARS	California Emission Inventory Data and Reporting System
CO	Carbon Monoxide
DPLU	Department pf Planning and Land Use
EPA	Environmental Protection Agency
ECT	Emission Control Technology
ERCs	Emission Reduction Credits
FIP	Federal Implementation Plan
H_2S	Hydrogen Sulfide
HAPs	Hazardous Air Pollutants
HARP	Hotspots Analysis and Reporting Program
HCFCs	Hydrochloroflourocarbons
HHI	Health Hazard Index
ISC	Industrial Source Complex model
mg/m^3	Milligrams per cubic meter
$\mu g/m^3$	Micrograms per cubic meter
MACT	Maximum Achievable Control Technology
MTBE	Methyl tertiary butyl ether
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NH_3	Ammonia
NO_X	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
NSR	New Source Review
O_3	Ozone
Pb	Lead
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Respirable Particulate Matter
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RAQS	San Diego County's Regional Air Quality Strategy
ROCs	Reactive Organic Compounds

ROG	Reactive Organic Gases
SANDAG	San Diego Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAB	South Coast Air Basin
SDAB	San Diego Air Basin
SDAPCD	San Diego County Air Pollution Control District
SIP	State Implementation Plan
SLAMS	State and Local Monitoring Stations network
SLTs	Screening Level Thresholds
SO_2	Sulfur Dioxide
SO_x	Oxides of Sulfur
SSAB	Salton Sea Air Basin
TACs	Toxic Air Contaminants
T-BACT	Toxic Best Available Control Technology
VOCs	Volatile Organic Compounds
VSP	Visibility Reducing Particulates

INTRODUCTION

This document provides guidance for evaluating adverse environmental effects that a proposed residential development or other land development projects may have on Air Quality. Specifically, this document addresses the following questions listed in the California Environmental Quality Act (CEQA) Guidelines, Appendix G, III. Air Quality:

Would the project:

a) Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

b) Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

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 (PM_{10}, $PM_{2.5}$ or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen [NO_X] and Volatile Organic Compounds [VOCs])?

d) Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

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

1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS

Air quality at a given location can be described by the concentrations of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter (µg/m3). The significance of a pollutant concentration is typically determined by comparing the concentration to an appropriate Federal and/or State ambient air quality standard. The standards represent the allowable atmospheric concentrations at which the public health and welfare are protected, and include a reasonable margin of safety to protect the more sensitive receptors in the population.

When discussing air resources, existing conditions reflect four specific areas: (1) macroclimate (meteorological conditions within San Diego County in general); (2) microclimate (specific meteorological conditions affecting a specific portion of the County); (3) status of the air basin relating to Federal and State Ambient Air Quality Standards (AAQS); and (4) status of the air basin relating to emissions of toxic air contaminants based on the California Air Resource Board (ARB) summaries. Given the diverse nature of the microclimates that exist in San Diego County, only a general discussion of the meteorological conditions that affect the entire air basin is provided here.

1.1 Air Quality Resource Information & Considerations

The Federal standards, established by the U.S. Environmental Protection Agency (EPA), stemming from the Federal Clean Air Act (CAA) and subsequent amendments, are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS, other than for ozone and those based on annual averages, are maximum acceptable concentrations not to be exceeded more than once per year. The annual NAAQS may never be exceeded. (The ozone standard is not to be exceeded more than three times in three years.) The State standards, established by the ARB, are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS are defined as the maximum acceptable pollutant concentrations that are not to be equaled or exceeded, depending on the specific pollutant.

NAAQS have been established for seven pollutants: Ozone (O_3), Respirable Particulate Matter (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Lead (Pb), and Sulfur Dioxide (SO_2). These pollutants are commonly known as "criteria" pollutants because their standards are based on certain "criteria" regarding impacts to health and human welfare. In addition, CAAQS have been established for Sulfates, Hydrogen Sulfide (H_2S), Vinyl Chloride and Visibility Reducing Particulates (VSP). Table 1 below contains a listing of typical sources of each of the criteria pollutants, the recognized health effects, and typical controls applied for each.

Table 1
Criteria Pollutants & Pollutants of Concern, Sources, Recognized Health Effects and Controls

Pollutant	Sources	Health Effects	Typical Controls
Ozone (O_3)	Formed when reactive organic gases (ROG) and nitrogen oxides react in the presence of sunlight. ROG sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil); solvents; petroleum processing and storage.	Breathing difficulties, lung tissue damage, vegetation damage, damage to rubber and some plastics.	Reduce motor vehicle reactive organic gas (ROG) and nitrogen oxide (NOx) emissions through emission standards, reformulated fuels, inspections programs, and reduced vehicle use. Limit ROG emissions from commercial operations, gasoline refueling facilities, and consumer products. Limit ROG and NOx emissions from industrial sources such as power plants and manufacturing facilities.

Pollutant	Sources	Health Effects	Typical Controls
Respirable Particulate Matter (PM_{10})	Road dust, windblown dust, agriculture and construction, fireplaces. Also formed from other pollutants (NOx, SOx, organics). Incomplete combustion.	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling.	Control dust sources, industrial particulate emissions, woodburning stoves and fireplaces. Reduce secondary pollutants which react to form PM_{10}. Conserve energy.
Fine Particulate Matter ($PM_{2.5}$)	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (NOx, SOx, organics, and NH_3).	Increases respiratory disease, lung damage, cancer, and premature death, reduced visibility, surface soiling. Particles can aggravate heart diseases such as congestive heart failure and coronary artery disease	Reduce combustion emissions from motor vehicles, equipment, industries, and agricultural and residential burning. Precursor controls, like those for ozone, reduce fine particle formation in the atmosphere.
Carbon Monoxide (CO)	Any source that burns fuel such as automobiles, trucks, heavy construction and farming equipment, residential heating.	Chest pain in heart patients, headaches, reduced mental alertness.	Control motor vehicle and industrial emissions. Use oxygenated gasoline during winter months. Conserve energy.
Nitrogen Dioxide (NO_2)	See Carbon Monoxide.	Lung irritation and damage. Reacts in the atmosphere to form ozone and acid rain.	Control motor vehicle and industrial combustion emissions. Conserve energy.
Lead	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint.	Learning disabilities, brain and kidney damage.	Control metal smelters. No lead in gasoline or paint.
Sulfur Dioxide (SO_2)	Coal or oil burning power plants and industries, refineries, diesel engines.	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.	Reduce use of high sulfur fuels (e.g., use low sulfur reformulated diesel or natural gas). Conserve energy.

Pollutant	Sources	Health Effects	Typical Controls
Sulfates	Produced by reaction in the air of SO_2, (see SO_2 sources), a component of acid rain.	Breathing difficulties, aggravates asthma, reduced visibility.	See SO_2
Hydrogen Sulfide	Geothermal power plants, petroleum production and refining, sewer gas.	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).	Control emissions from geothermal power plants, petroleum production and refining, sewers, and sewage treatment plants.
Visibility Reducing Particulates	See $PM_{2.5}$	Reduced visibility (e.g. obscures mountains and other scenery), reduced airport safety.	See $PM_{2.5}$
Vinyl Chloride	Exhaust gases from factories that manufacture or process vinyl chloride (construction, packaging, and transportation industries)	Central nervous system effects (e.g. dizziness, drowsiness, headaches), kidney irritation, liver damage, liver cancer.	Control emissions from plants that manufacture or process vinyl chloride, installation of monitoring systems.
Toxic Air Contaminant (TAC)	Combustion engines (stationary and mobile), diesel combustion, storage and use of TAC-containing substances (i.e. gasoline, lead smelting, etc.)	Depends on TAC, but may include cancer, mutagenic and/or teratogenic effects, other acute or chronic health effects.	Toxic Best Available Control Technologies (T-BACT), limit emissions from known sources.

Table 1 also provides a general description of “toxic air contaminant (TAC),” a category of pollutants for which specific Federal or State ambient air quality standards have not been established. TAC include pollutants known or suspected to cause cancer or other adverse health effects such as respiratory irritation or reproductive effects. The regulatory structure for TAC is different than for criteria pollutants. Regulatory standards for most TAC involve the levels of public health risk from exposures, rather than specific concentrations of the pollutant.

In San Diego, the Air Pollution Control District (APCD) is responsible for enforcing the rules and regulations protecting air quality. As part of this responsibility, the APCD has created a strategy that lays out a program for attaining the standards for O_3. The strategy, called the San Diego County RAQS, outlines APCD's plans and control

measures designed to attain the CAAQS for O_3. In addition, the APCD's Federally-enforceable control measures for ozone-precursors are included in the SIP, which is adopted by the ARB to ensure attainment of the O_3 NAAQS. These plans accommodate emissions from all sources, including natural sources. Through the implementation of control measures on stationary sources, as well as through the control measures applied to mobile sources by ARB and EPA, these plans focus on attaining the standards for the San Diego Air Basin. However, the RAQS and the SIP do not address impacts from sources of PM_{10} or $PM_{2.5}$, although the SIP does include control measures (rules) to regulate stationary source emissions of those pollutants.

The RAQS relies on mobile source (vehicular) information from the San Diego Association of Governments (SANDAG), as well as information regarding projected growth in the County, to determine what strategies are necessary for the reduction of stationary source emissions through regulatory controls. Since APCD only regulates non-mobile (stationary) sources, only the stationary source control measures identified in the RAQS and SIP have been developed by the APCD into regulations. The rules are developed to set limits on the amount of emissions from various types of sources and/or require specific emission control technologies. Following rule adoption, a permit system is used to require air pollution controls on new and modified stationary sources and to ensure compliance with regulations by prescribing specific operating conditions, monitoring, record keeping, reporting, emissions testing, etc. Stationary sources are inspected by APCD on a regular basis to ensure compliance with all emissions, maintenance and operating requirements.

San Diego County is presently designated a basic non-attainment area for the NAAQS for O_3. The county is also a non-attainment area for the CAAQS for ozone and PM_{10},. As such the highest concern involving criteria pollutants is whether a project would result in a cumulatively considerable net increase of PM_{10}, $PM_{2.5}$, or exceed screening-level criteria thresholds for O_3 precursors [oxides of nitrogen (NO_X) and volatile organic compounds (VOCs)].

1.2 Regional Meteorology/Climate

The boundaries of the San Diego Air Basin are contiguous with the political boundaries of San Diego County. The County of San Diego encompasses approximately 4,260 square miles and is bounded on the north by Orange and Riverside Counties, on the east by Imperial County, on the west by the Pacific Ocean, and on the south by the Mexican State of Baja California. The County is divided by the Laguna Mountain Range which runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert portion of the County. The Laguna Mountains have peaks reaching over 6,000 feet, with the highest point in the County being Hot Springs Mountain rising to 6,533 feet. The coastal region is made up of coastal terraces that rise from the ocean into wide mesas which then, moving farther east, transition into the Laguna Foothills. Farther east, the topography gradually rises to the rugged mountains. On the east side, the mountains drop off rapidly to the Anza-Borrego Desert, which is characterized by several broken mountain ranges with desert valleys in between. To the north of the County are the Santa Ana Mountains which run along the coast of

Orange County, turning east to join with the Laguna Mountains near the San Diego-Orange County border.

The climate of the San Diego Air Basin, as with all of Southern California, is largely dominated by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The climatic classification for San Diego is a Mediterranean climate, with warm, dry summers and mild, wet winters. Average annual precipitation ranges from approximately 10 inches on the coast to over 30 inches in the mountains to the east (the desert regions of San Diego County generally receive between 4 and 6 inches per year).

1.3 Pollutant Transport

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific high pressure creates a temperature inversion, known as a subsidence inversion, which acts as a lid to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions, which results in the creation of ozone at this surface layer.

Daytime onshore flow (i.e., sea breeze) and nighttime offshore flow (i.e., land breeze) are quite common in Southern California. The sea breeze helps to moderate daytime temperatures in the western portion of San Diego County, which greatly adds to the climatic draw of the region. This also leads to emissions being blown out to sea at night and returning to land the following day. Under certain conditions, this atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County, which often results in high ozone concentrations being measured at San Diego County air pollution monitoring stations. Transport of air pollutants from Los Angeles to San Diego has also been shown to occur aloft within the stable layer of the elevated subsidence inversion. In this layer, removed from fresh emissions of oxides of nitrogen, which would scavenge and reduce ozone concentrations, high levels of ozone are transported into San Diego County.

1.4 Basin Attainment Status

The EPA designates all areas of the United States as having air quality better than the NAAQS ("attainment"), worse than ("non-attainment") the NAAQS, or "unclassified" in areas where insufficient data exist. A non-attainment designation means that a primary NAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. Pollutants in an area are often designated as unclassified when there is a lack of data for the EPA to form a basis of attainment status. Just as the EPA designates air basins as being in "attainment" or "non-attainment" of the NAAQS, the ARB designates areas of the State as either in attainment or non-attainment of the

CAAQS. An area is deemed "non-attainment" if a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant.

The San Diego APCD operates and maintains ten monitoring stations located throughout the region. The purpose of these stations is to measure concentrations of the criteria pollutants and determine whether the ambient air quality meets the NAAQS and the CAAQS. The stations are located in Alpine, Camp Pendleton, Chula Vista, Del Mar, El Cajon, Escondido, Kearny Mesa, Otay Mesa, and downtown San Diego (2). Over the past several years San Diego County has experienced substantial improvement in ambient ozone levels according to data collected at the monitoring stations. The number of days above the Federal one-hour ozone standard has decreased from 39 days in 1990 to 0 days in 2005. Similarly, the number of days above the more stringent State standard has decreased from 139 days in 1990 to 16 days in 2005. San Diego County reached a milestone when it was redesignated in 2003 as an attainment area for the Federal 1-hour ozone standard. This was achieved when each monitoring station in the region had no more than three days in a three-year period with a maximum hourly average concentration exceeding the standard. However, San Diego County was designated a basic non-attainment area for the new eight-hour ozone standard on June 15, 2004, and the one-hour ozone standard was revoked on June 15, 2005.

Federal standards for PM_{10} have not been exceeded enough times for the SDAB to be considered in non-attainment. However, the stricter State standards have not been met in San Diego County or in most other parts of California. The EPA created the new standards targeting particles 2.5 microns or less in 1997 based on medical studies showing the tiny particles could lodge deeply into the lungs. In 2005, the federal EPA designated San Diego County as an attainment area for its new annual standard for fine particulates ($PM_{2.5}$). San Diego has been designated as attainment for the federal 24-hour $PM_{2.5}$ standard. Initially in 2004, EPA designated San Diego as non-attainment for the annual standard, which would have resulted in significant expense for the District and for affected business activities. The District recognized, however, that EPA had not used the most recent air quality data in its analysis, and that air quality in San Diego was near attainment and continuing to improve. The District expedited validation of air quality data for 2004 that demonstrated San Diego County met the annual Federal $PM_{2.5}$ standard. Areas are considered in attainment for the annual $PM_{2.5}$ standard when the three-year average of the annual arithmetic mean is equal to or less than 15 $\mu g/m^3$. In 2006 the EPA revised the Federal $PM_{2.5}$ 24-hour standard to 35 $\mu g/m^3$. The EPA will redesignate areas in 2007 according to this revised standard; it is likely that San Diego County will not be in attainment of the revised standard.

A complete listing of the current attainment status by pollutant for San Diego County is shown on Table 2 below and the NAAQS/CAAQS are provided in Tables 3 & 4.

Table 2
San Diego County Air Basin Attainment Status by Pollutant[1]

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Non-attainment	No Federal Standard
	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 Hour	Attainment	Maintenance Area[3]
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Unclassified	No Federal Standard

1 Data reflects status as of March 19, 2007.

2 Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3 Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

Table 3
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
		Concentration	Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	---	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m^3)	0.08 ppm (157 µg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	---	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	None
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	---	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	---	0.053 ppm(100 µg/m^3)	Same as Primary Standard
	1 Hour	0.25 ppm (470 µg/m^3)	---	
Lead	30 Day Average	1.5 µg/m^3	---	---
	Calendar Quarter	---	1.5 µg/m^3	Same as Primary Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	---	0.030 ppm (80 µg/m^3)	---
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	---
	3 Hour	---	---	0.5 ppm (1300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	---	---

Table Source: California Air Resources Board, 2006
ppm=parts per million
mg/m^3=milligrams per cubic meter
µg/m^3=micrograms per cubic meter

Table 4
State Ambient Air Quality Standards with No Federal Counterpart

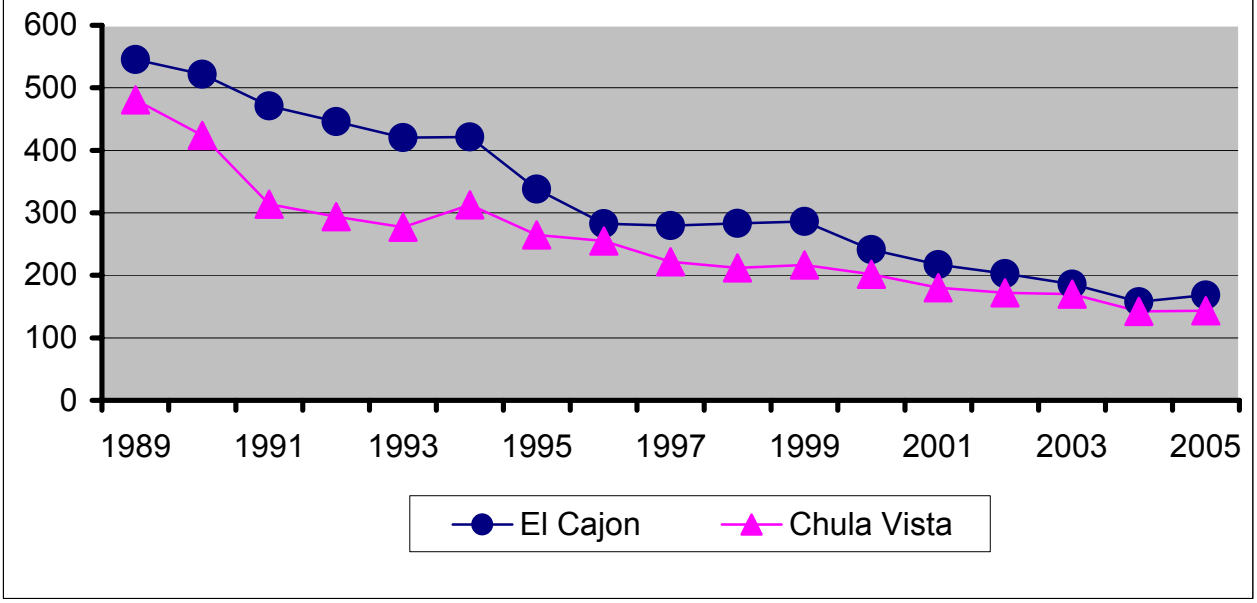
Pollutant	Averaging Time	California Standards	Federal Standards	
		Concentration	Primary	Secondary
Sulfates	24 Hour	25 µg/m^3	NO FEDERAL STANDARDS	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

Table Source: California Air Resources Board, 2006
ppm=parts per million
mg/m^3=milligrams per cubic meter
µg/m^3=micrograms per cubic meter

1.5 Toxic Air Contaminants

Industrial, commercial, and governmental facilities still emit toxic air contaminants (TAC) although emissions from industrial and commercial sources have been reduced by approximately 75% since 1989. Based on the most recent estimates, those sites inventoried emit more than three million pounds of TACs annually (down from 4.5 million pounds in 1998). Motor vehicles and area and natural sources are also key contributors of TACs, emitting more than 27 million pounds. Although TAC emissions from stationary sources in San Diego County have been reduced by approximately 81% since 1989, large amounts of toxic compounds are still emitted into the air from a wide variety of sources including motor vehicles, industrial facilities, household products, area sources, and natural processes. Prioritizing and reducing these emissions further will require a continued, cooperative effort by the public, industry, environmental groups, ARB, and the APCD. The majority of local facilities are in compliance with current District emission standards, which now focus on criteria air pollutants and their precursors (e.g., VOC, oxides of nitrogen, particulate matter) and TACs.

Figure 1: Toxic Air Contaminant Incremental Cancer Risk for San Diego Air Basin*



* Excludes cancer risk level from diesel-fired particulates.

The State ARB publishes detailed toxic sampling results from all California monitoring sites on its website. A summary of the ARB-approved results for the two San Diego County air toxic monitoring stations is provided in Figure 1. Excluding diesel particulates, a 71% reduction in the ambient incremental cancer risk from air toxics has been measured in Chula Vista and a 70% reduction in El Cajon since 1989 as shown in Figure 1. The estimated risk was 142 in one million for Chula Vista and 158 in one million for El Cajon in 2004, down from 481 and 545 in one million, respectively, in 1989.

Typical land use projects that do not propose a stationary source of pollutants primarily generate diesel particulates from the increased traffic and temporary use of construction equipment. Diesel particulates also contribute significantly to ambient risk levels. Although a method does not exist to directly monitor diesel particulate concentrations, ARB has suggested methods that can be used to estimate diesel concentrations. Based on ARB estimates, diesel particulate emissions could add an additional 420 in one million to the ambient risk levels in San Diego County. ARB estimates that risk from diesel particulate has decreased by about 50 percent from 870 in one million since 1990.

APCD continues to work with regulated stationary sources to produce more comprehensive and accurate emission inventories. With the release of ARB's health risk assessment (HRA) software, the District is evaluating health risk assessments and continues to evaluate priorities based on the recently approved inventories. Ongoing implementation of toxic air contaminant control programs such as the Air Toxics "Hot

Spots" Program, District Rules 1200 (Toxic Air Contaminants - New Source Review) and 1210 (Toxic Air Contaminant Public Health Risks - Public Notification and Risk Reduction) will further reduce local public health risks associated with emissions of toxic air contaminants. Those efforts will also improve information on levels of exposure and risk as well as identifying compounds, processes, and facilities that are potentially causing significant risks. Additionally, the District continues to implement State diesel engine air toxic control measures which will significantly reduce public risk from exposure to diesel engine particulate matter. Measures to reduce vehicle trips and miles traveled will reduce toxic emissions which result from the burning of gasoline. Finally, measures to reduce emissions of VOCs as ozone precursors will also decrease emissions of toxic VOCs.

2.0 EXISTING REGULATIONS AND POLICIES

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. Due to the extensive nature of air pollution regulation, this regulatory framework provides only a brief overview of the pertinent air quality regulations and standards.

2.1 Federal Regulations and Standards

National Environmental Policy Act[1]
Federal agencies that implement the National Environmental Policy Act (NEPA) consider potential air quality impacts when reviewing the environmental impacts of proposed federal projects.

Federal Clean Air Act[2]
At the Federal level, the EPA has been charged with implementing the national air quality programs. The backbone of the EPA's air quality mandate is the Federal CAA signed into law in 1970, and the subsequent Clean Air Act Amendments (CAAA) of 1977 and 1990. Although the EPA deals primarily with international, national, and inter-State air pollution, the CAA and CAAA grant authority to the EPA to regulate air pollution on many levels. On the State level, the EPA is responsible for oversight of the State air quality programs. In addition, the EPA sets Federal vehicle and stationary source emission standards, and provides research and guidance for State and regional/local air quality programs.

Under the CAA and CAAA, the EPA was required to establish National Ambient Air Quality Standards (NAAQS) for several air pollutants. The pollutants of main concern include ozone (O_3), carbon monoxide (CO), oxides of nitrogen (NO_X) expressed as nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter equal to or smaller than 10 microns and 2.5 microns in diameter (PM_{10} & $PM_{2.5}$). As discussed above, the NAAQS represent the allowable atmospheric concentrations at which the public health

[1] U.S. Code, Title 42, Chapter 55, as amended. [http://www4.law.cornell.edu/uscode/42/ch55.html.]
[2] US Code, Title 42, Chapter 85, as amended, known as the Clean Air Act. [http://www4.law.cornell.edu/uscode/42/ch85.html; http://www.epa.gov/oar/oaq_caa.html]

and welfare are protected, and include a reasonable margin of safety to protect the more sensitive receptors in the population.

In addition, the CAA (and its subsequent amendments) required each State to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAAA of 1990 required States containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAAA, and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the non-attainment area, and may impose additional control measures. As a whole, FIPs tend to be more stringent than SIPs, and most jurisdictions make every effort to ensure their SIP is adequate.

2.2 State Regulations and Standards

California Environmental Quality Act[3]

Under the California Environmental Quality Act (CEQA) lead agencies are required to consider impacts relating to air quality. This includes the consideration of potential impacts resulting from pollutant emissions associated with the construction and operational phases of projects.

California Air Resource Board[4]

The State agency responsible for coordination of State and local air pollution control programs is the ARB, a branch of the California EPA. A primary responsibility of ARB is to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Although the ARB has primary responsibility, and produces a major portion of the SIP for pollution sources that are State-wide in scope (e.g. motor vehicles), it relies on local air districts to provide additional strategies for sources under their jurisdiction. The ARB combines its data and plans with the plans provided by the local air districts, and submits the SIP to the EPA. As such, the SIP consists of the emissions standards for vehicular sources set by the ARB, and the attainment plans including the rules adopted by the local air districts and approved by the ARB.

To ensure attainment of the NAAQS and to improve California's air quality, the ARB has established a stricter set of standards in the CAAQS. The CAAQS are defined as the maximum acceptable pollutant concentrations that are not to be equaled or exceeded, depending on the specific pollutant and averaging times.

[3] Public Resources Code 21000-21178; California Code of Regulations, Guidelines for Implementation of CEQA, Title 14, Chapter 3, §15000-15387, Appendix G. [http://ceres.ca.gov/topic/env_law/ceqa/guidelines/]
[4] California Code of Regulation Titles 13 & 17, California Health and Safety Code. [http://www.arb.ca.gov/regs.htm; http://www.leginfo.ca.gov/calaw.html]

Further duties of the ARB include monitoring air quality. The ARB has established and maintains, in conjunction with local air pollution control agencies, a network of sampling stations known as the State and Local Air Monitoring Station (SLAMS) network. These stations monitor the pollutant levels in the ambient air around the monitoring station. ARB is also responsible for setting emission standards for motor vehicles, consumer products, small utility engines, and off-road vehicles. The ARB is additionally responsible, in conjunction with the local air districts, for developing and maintaining the AB 2588 Air Toxic "Hot Spots" program and for regulating toxic air contaminants (TAC) in general.

2.3 Local Regulations and Standards

Air Quality Management Districts (AQMD) and Air Pollution Control Districts[5]

State law recognizes that air pollution does not respect political boundaries, and as such required the ARB to divide the State into separate air basins based on geographical and meteorological conditions. An Air Pollution Control District (APCD) is A county agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a district air pollution control board composed of the elected county supervisors. An AQMD is a group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region. In the County of San Diego, protection and regulation of air quality is the responsibility of the San Diego County APCD. The Federal and State standards have been adopted by the APCD for assessing local air quality impacts.

Air districts, such as the San Diego County APCD, have the primary responsibility for control of air pollution from all sources other than emissions from motor vehicles, which are the responsibility of the ARB and EPA. Under Federal and State law, air districts are required to adopt and enforce rules and regulations to achieve State and Federal AAQS, and enforce applicable Federal and State laws. Since the passage of the California Clean Air Act (CCAA) and the CAA and Amendments, this role has been expanded to include the implementation of transportation control measures, and indirect source control programs to reduce mobile source emissions.

Regional Air Quality Plans[6]

As previously stated, a non-attainment designation means that a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. For each non-attainment area within the State, the CCAA has specified air quality management strategies that must be adopted by the agency responsible for the non-attainment area. Each area must prepare and adopt an air quality management plan (AQMP) or regional air quality strategy (RAQS), which lays out programs for attaining the CAAQS and NAAQS for all criteria pollutants. At present, no attainment plan for $PM_{2.5}$ or PM_{10} is required by the state regulations.

[5] California Health & Safety Code § 4000 et seq. [http://www.sdapcd.org/rules/rules/randr.html]
[6] California Health & Safety Code § 40911. [http://www.leginfo.ca.gov/calaw.html]

The attainment plan for Ozone (O_3) must demonstrate a five-percent-per-year reduction of ozone precursors. In cases where this reduction rate is not feasible, alternative strategies must be identified, and every feasible control measure implemented. The San Diego County RAQS for the San Diego Air Basin was initially adopted in 1991, and subsequently revised in 1995, then in 1998, again in 2001 and most recently in 2004. The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for O_3. In addition, the APCD relies on the SIP, which includes the APCD's plans and control measures for attaining the O_3 NAAQS. These plans accommodate emissions from all sources, including natural sources, through implementation of control measures, where feasible, on sources to attain the standards. The County of San Diego RAQS relies on information from the San Diego Association of Governments (SANDAG) including the SANDAG Transportation Control Measures Plan (TCM Plan), as well as information regarding projected growth in the County, to identify strategies for the reduction of stationary source emissions through regulatory controls.

APCD Rules and Regulations[7]

As discussed above, State law provides that local air districts such as the APCD have primary responsibility for controlling emissions from non-mobile (stationary) sources. The stationary source control measures identified in the RAQS and SIP have been developed by the APCD into regulations through a formal rulemaking process. Rules are developed to set limits on the amount of emissions from various types of sources and/or by requiring specific emission control technologies (ECTs). Following rule adoption, a permit system is used to impose controls on new and modified stationary sources and to ensure compliance with regulations by prescribing specific operating conditions or equipment on a source.

Of particular difficulty in San Diego County is ensuring that new or modified sources do not interfere with attainment or maintenance of the established air quality standards for O_3. Since O_3 is a secondary pollutant (i.e. O_3 is not directly emitted, but results from complex chemical reactions in the atmosphere from precursor pollutants) control of the precursors is required. Therefore, control of emissions of VOCs and oxides of nitrogen (NO_X), the O_3 precursors, is essential.

New Source Review and Prevention of Significant Deterioration[8]

Federal and State law requires that air districts in non-attainment areas conduct New Source Review (NSR) prior to permitting "major" sources, or modifying existing "major" sources. The purpose of NSR is to allow continued industrial growth in non-attainment areas and, at the same time, ensure that new and modified sources do not aggravate existing air quality problems and/or negate emissions reductions from other sources. The SIP for the SDAB also requires non-major sources to undergo NSR.

Under NSR, all existing and new stationary sources of emissions are required to conduct a Best Available Control Technology (BACT) analysis to evaluate the feasibility

[7] APCD's Rules and Regulations I-XV. [http://www.sdapcd.org/rules/rules/randr.html]
[8] APCD's Rules and Regulations II. [http://www.sdapcd.org/rules/rules//REG2.html]

of implementing emission control devices. New sources may in some instances have to offset their own emission increases using Emission Reduction Credits (ERCs). In general, technological feasibility, economic, environmental, and energy issues must be taken into account when determining the applicable appropriate control technology.

In addition, Rule 20 provides for the protection of Class I Airsheds. Class I Airsheds are Federal protected lands designated under Title I, Part C of the Clean Air Act. The object of the Prevention of Significant Deterioration (PSD) regulations is to prevent deterioration of air quality within attainment areas. Federal PSD regulations state that major sources of air pollution may not impact a Class I Airshed within 100 km of it. As of 2006, there were six Class I Airsheds within 100 km of San Diego County, with only one, the Agua Tibia National Wilderness Area within the boundaries San Diego County.

San Diego County Grading, Clearing and Watercourses Ordinance
SEC. 87.428. Dust Control Measures requires all clearing and grading to be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust. These project design measures are to be incorporated into all earth disturbing activities to minimize the amount of PM emissions from construction.

2.4 Toxic Air Contaminants[9]

Toxic air contaminants are controlled under a different regulatory process than criteria pollutants. Because no safe level of emissions can be established for toxic air pollutants region-wide, the regulation of toxic air pollutants is based on the levels of cancer risk and other health risks posed to persons who may be exposed. Joint Federal, State and local efforts to develop further regulation of air toxics will be ongoing for the foreseeable future.

Under Federal law, 188 substances are listed as Hazardous Air Pollutants (HAPs). Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) program. The EPA is establishing regulatory schemes for specific source categories, and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category.

State law has established the framework for California's toxic air contaminant identification and control program, which is generally more stringent than the Federal program, and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, and is adopting appropriate control measures for each. Once adopted at the State level, each district will be required to adopt a measure that is equally or more stringent. In addition, the California Air Toxics

[9] Code of Federal Regulations; Title 40; Chapter 1; Part 63; California Health and Safety Code; Division 26; Part 2, § 39656; APCD's Rules and Regulations XII

"Hot Spots" Information and Assessment Act (AB 2588) is a State-wide program enacted in 1987. AB 2588 requires hundreds of facilities in San Diego County to quantify the emissions of TACs, and in some cases conduct a health risk assessment, and notify the public, while developing risk reduction strategies. In San Diego County, APCD Rule 1210 implements the public notification and risk reduction requirements of the State Air Toxics “Hot Spots” Act, and requires facilities to reduce risks to acceptable levels within 5 years. In addition, Rule 1200 establishes acceptable risk levels, and emission control requirements for new and modified facilities that may emit additional TACs.

Typically, land development projects generate diesel emissions from construction vehicles during the construction phase, as well as some diesel emissions from small trucks during the operational phase. Diesel exhaust is mainly composed of particulate matter and gases, which contain potential cancer-causing substances. Emissions from diesel engines currently include over 40 substances that are listed by EPA as hazardous air pollutants (HAPs) and by the ARB as TACs. On August 27, 1998, the ARB identified particulate matter in diesel exhaust as a toxic air contaminant, based on data linking diesel particulate emissions to increased risks of lung cancer and respiratory disease.

In September 2000, ARB adopted a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel particulate matter emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identifies 14 measures that ARB will implement over the next several years, and diesel engines in both on-road and off-road mobile sources are already regulated by the United States EPA.

3.0 TYPICAL ADVERSE EFFECTS

Development activities typically observed in applications reviewed by the Department of Planning and Land Use (DPLU) range from commercial/industrial operations to residential subdivisions. In general, air quality impacts from land use projects are typically the result of emissions from additional motor vehicle trips, and the short-term construction activities associated with such projects. If growth caused by a project was anticipated by SANDAG’s projections and all APCD rules and regulations are adhered to, then a proposed land use project would not be expected to have a significant project-level impact. However, if proposed projects result in growth greater than what was anticipated in the SANDAG projections, create traffic impacts, and/or move substantial amounts of soil, then those projects would need to be evaluated to ensure that the project would not exceed the NAAQS or CAAQS, impede their attainment, and/or create a cumulatively considerable net increase of PM_{10}, $PM_{2.5}$, or ozone precursors. If the project in question proposes any stationary sources of criteria pollutants, impacts from the equipment used on-site (e.g. boilers, diesel generators, paint booths, etc.) would need to be evaluated to ensure that the project would not create significant project-level or cumulative impacts. In general, large projects have the potential for impacts to air quality during construction and operational phases of the project.

3.1 Construction Impacts

Construction impacts predominantly result from two sources: fugitive dust from surface disturbance activities; and exhaust emissions resulting from the use of construction equipment (including, but not-limited to: graders, dozers, back hoes, haul trucks, stationary electricity generators, and construction worker vehicles). One of the pollutants of concern during construction is particulate matter, since PM_{10} is emitted as windblown (fugitive) dust during surface disturbance, and as exhaust of diesel-fired construction equipment (particularly as $PM_{2.5}$). The ARB's Scientific Review Panel added diesel exhaust particulates to the California list of TACs as a carcinogenic material in 1998, under the so-called Tanner Act. The potential for an incremental cancer risk resulting from diesel-fired construction equipment exists. Other emissions of concern include architectural coating products off-gassing (VOCs), and other sources of mobile source (on-road and off-road) combustion (NOx, SOx, CO, PM_{10}, $PM_{2.5}$, and VOCs) associated with the project.

3.2 Operational Impacts

Operational emissions are those which occur after project construction activities have been completed, and the project becomes operational. These emissions are a result of increased average daily vehicle trips by the new occupants of a facility, as well as any proposed stationary sources associated with the subject facility or development. Depending on the characteristics of the individual project, operational activities have the potential to generate emissions of criteria pollutants.

Operational impacts from land development activities are predominantly the result of vehicular traffic associated with projects. Although industrial developments may have additional pollutants of concern, combustion emissions (NOx, SOx, CO, PM_{10}, $PM_{2.5}$, and VOCs) associated with mobile sources are generally the primary concern in development applications reviewed by the DPLU. This includes diesel particulate emissions from that portion of the mobile fleet that runs on diesel fuel (including buses). For those areas which have severe degradation in traffic flow (i.e., levels of service "E" or below and over 3,000 peak-hour trips), the possibility of microscale carbon monoxide "hot spots" exists. Other sources of emissions, including emissions of particulates and other combustion products from wood-burning fireplaces, exist in residential subdivisions, but generally to an insubstantial degree.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

Land-use development projects primarily result in emissions from construction activities and the traffic associated with daily operation (occupancy) of a proposed project. In order to establish acceptable criteria for determining significance each question listed under the State CEQA Guidelines Appendix G must be addressed individually. The quantitative screening-level thresholds (SLTs) and guidelines for determining significance are discussed below.

An affirmative response to or confirmation of any one of the following Guidelines will generally be considered a significant impact to air quality as a result of project implementation, in the absence of scientific evidence to the contrary:

4.1 Conformance to the Regional Air Quality Strategy

The separate guidelines of significance discussed below have been developed to answer the following question from the State CEQA Guidelines Appendix G:

- ***The project will conflict with or obstruct the implementation of the San Diego Regional Air Quality Strategy (RAQS) and/or applicable portions of the State Implementation Plan (SIP).***

The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for ozone. In addition, the APCD relies on the SIP, which includes the APCD's plans and control measures for attaining the ozone NAAQS. These plans accommodate emissions from all sources, including even natural sources, through implementation of control measures, where feasible, on stationary sources to attain the standards. (Mobile sources are regulated by the United States EPA and the California ARB, and the emissions and reduction strategies related to mobile sources are considered in the RAQS and the SIP.)

The RAQS rely on information from ARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions in order to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. The ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the County of San Diego General Plan and SANDAG's growth projections, the project would be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality. This situation would warrant further analysis to determine if the proposed project and the surrounding projects exceed the growth projections used in the RAQS for the specific subregional area.

At present, no particulate matter attainment plan is required by the statutes and no such plans have been developed for the SDAB.

4.2 Conformance to Federal and State Ambient Air Quality Standards

The separate guidelines of significance discussed below have been developed to answer the following question (b) from the State CEQA Guidelines Appendix G:

> ***Would the project result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

The San Diego APCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the district does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may used to evaluate the increased emissions which would be discharged to the SDAB from proposed land development projects.

SDAPCD Rule 20.2, which outlines these SLTs, states that any project "which results in an emissions increase equal to or greater than any of these levels, must:

> "demonstrate through an AQIA . . . that the project will not (A) cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard, nor (B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor (C) cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded, nor (D) prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard."

For projects whose stationary-source emissions are below these criteria, no AQIA is typically required, and project level emissions are presumed to be *less than significant.*

For CEQA purposes, these SLTs can be used to demonstrate that a project's total emissions (e.g. stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality. The hourly and yearly SLTs are most appropriately used in situations when temporary emissions like emergency generators or other stationary sources are proposed as a part of a project. The daily SLTs are most appropriately used for the standard construction and operational emissions. When project emissions have the potential to approach or exceed the SLTs listed below in Table 5, additional air quality modeling may need to be prepared to demonstrate that ground level concentrations resulting from project

emissions (with background levels) will be below Federal and State Ambient Air Quality Standards listed in Tables 3 and 4.

APCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of volatile organic compounds (VOCs) and $PM_{2.5}$. The use of the screening level for VOCs specified by the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than San Diego's APCD, is recommended for evaluating projects in San Diego County. For $PM_{2.5}$, the EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, will be used as the screening-level criteria as shown in Table 5 below:

Table 5
Screening-Level Thresholds for Air Quality Impact Analysis

Pollutant	Total Emissions		
	Lbs. Per Hour	Lbs. per Day	Tons per Year
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55*	10*
Oxides of Nitrogen (NOx)	25	250	40
Oxides of Sulfur (SOx)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOCs)	---	75**	13.7***

* EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.

** Threshold for VOCs based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley.

*** 13.7 Tons Per Year threshold based on 75 lbs/day multiplied by 365 days/year and divided by 2000 lbs/ton.

In the event that project emissions exceed these SLTs, specific modeling will be required for NO_2, SO_2, CO, and lead to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors, PM_{10} and $PM_{2.5}$, exceedances of the SLTs results in a significant impact. The reason for this is that the SDAB is currently not in attainment for PM_{10}, $PM_{2.5}$ and ozone. Therefore, unless a project includes design considerations or mitigation measures that would reduce the daily emissions to below the applicable screening levels, the impact for these pollutants (ozone precursors, PM_{10}, and $PM_{2.5}$) will be significant as discussed below. Consideration of CO "hotspots" is also provided below.

4.2.1 Ozone Precursors

- ***The project will result in emissions that exceed 250 pounds per day of NOx, or 75 pounds per day of VOCs.***

The Ambient Air Quality Standards reflect actual concentrations for each criteria pollutant. However, it is not economically feasible for individual land use projects to model actual concentrations for ozone based on emissions of its precursors due to the complex regional nature of ozone formation in the atmosphere. Therefore, exceedences of the SLTs for NOx and VOCs would result in a significant impact unless mitigation is incorporated that would reduce the emissions of these pollutants below the level of the screening thresholds.

4.2.2 Carbon Monoxide

- ***The project will result in emissions of carbon monoxide that when totaled with the ambient concentrations will exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm.***

CO emissions are the result of the combustion process and therefore primarily associated with mobile source emissions (vehicles). CO concentrations tend to be higher in urban areas where there are many mobile-source emissions. CO "hotspots" or pockets where the CO concentration exceeds the NAAQS and/or CAAQS, have been found to occur only at signalized intersections that operate at or below level of service (LOS) E with peak-hour trips for that intersection exceeding 3,000 trips[10]. Therefore, any project that would place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips) must conduct a "hotspot" analysis for CO. Likewise, projects that will cause road intersections to operate at or below a LOS E (with intersection peak-hour trips exceeding 3,000) will also have to conduct a CO "hotspot" analysis.

4.2.3 Particulate Matter

- ***The project will result in emissions of $PM_{2.5}$ that exceed 55 pounds per day.***

- ***The project will result in emissions of PM_{10} that exceed 100 pounds per day and increase the ambient PM_{10} concentration by 5 micrograms per cubic meter (5.0 µg/m^3) or greater at the maximum exposed individual.***

In June 2002, the California ARB adopted new, stricter standards for particulate matter that would affect both the coarse as well as fine particulate fraction. ARB delayed action on the proposed 24-hour $PM_{2.5}$ standard in light of the findings related to statistical issues in several key short-term exposure health effects studies. The EPA, however, has a "Proposed Rule to Implement the Fine Particle National Ambient Air

[10] Based on Table 5.4 Project Related CO Concentration Levels of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment.

Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, which is the equivalent of 55 pounds per day.

As previously stated, the PM_{10} screening-level threshold of 100 pounds per day comes from SDAPCD Rule 20.2. If a proposed project's emissions exceed the 100 pounds per day of $PM_{10,}$ relying on the definition of "significant impact" in SDAPCD rule 20.1, the project would create a significant impact if the actual ambient 24-hour concentration is increased by 5.0 $\mu g/m^3$ in a Class II area (1.0 $\mu g/m^3$ in a Class I Area[11]).

4.3 Cumulatively Considerable Net Increase of Criteria Pollutants

The separate guidelines of significance discussed below have been developed to answer the following question (c) from the State CEQA Guidelines Appendix G:

> ***The project will result in a cumulatively considerable net increase of any criteria pollutant for which the San Diego Air Basin is non-attainment under an applicable Federal or State Ambient Air Quality Standard (including emissions which exceed the SLTs for ozone precursors listed in Table 5).***

In analyzing cumulative impacts from a proposed project, the analysis must specifically look at the project's contribution to the cumulative increase in pollutants for which the San Diego Air Basin is listed as "non-attainment" for the State and Federal AAQS. Of the seven Federal "criteria" pollutants, only *ozone* occurs in concentrations high enough to violate Federal standards in San Diego County. Of the seven State "criteria" pollutants that have a Federal counterpart, only *ozone*, PM_{10}, and $PM_{2.5}$ occur in concentrations high enough to violate State standards in San Diego County. Since few sources (almost none) emit ozone directly, and ozone is caused by complex chemical reactions, control of ozone is accomplished by the control of emissions of NO_x *and VOCs*.

Cumulatively considerable net increases during the construction phase would typically happen if two or more projects near each other are simultaneously constructing projects. ***The following Guidelines for Determining Significance must be used for determining the cumulatively considerable net increases during the Construction Phase:***

- ***A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.***

- ***In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects***

[11] **Class I Area** means any area designated as Class I under Title I, Part C of the federal Clean Air Act. As of December 2006, the Agua Tibia National Wilderness Area was the only area so designated within San Diego County. Class II areas means any area not designated as a Class I area.

or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines identified in Section 4.2 of this document.

The guidelines for the consideration of operational cumulatively considerable net increases are treated differently due to the mobile nature of the emissions. The San Diego Air Basin's RAQS, based on growth projections derived from the allowed General Plan densities, are updated every three years by SDAPCD and lay out the programs for attaining the CAAQS and NAAQS for ozone precursors. It is assumed that a project which conforms to the County of San Diego General Plan, and does not have emissions exceeding the SLTs, will not create a cumulatively considerable net increase to ozone since the emissions were accounted for in the RAQS.

The following Guidelines for Determining Significance must be used for determining the cumulatively considerable net increases during the <u>Operational Phase</u>:

- ***A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.***

- ***Projects that cause road intersections to operate at or below a LOS E (analysis only required when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO "hotspot" create a cumulatively considerable net increase of CO.***

Projects creating a cumulatively considerable significant impact can reduce the impact to less than significant with "fair share" mitigation. Section 15130(a)(3) of the CEQA Guidelines states, "An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact."

Examples of "fair share" mitigation include but are not limited to the following:

Construction Mitigation Measures

- Contributing funds to Carl Moyer-like retrofit projects;
- Purchasing ERCs;
- Retrofit some of the construction equipment with cooled exhaust gas recirculation, lean-NO_x catalysts, and/or diesel particulate filters; and/or
- Utilizing newer equipment (newer than 1996).

Operational Mitigation Measures

- Construction of park and ride lots;
- Lower-emission school bus projects;

- Transit infrastructure;
- Natural Gas fueling infrastructure;
- Pedestrian infrastructure improvements; and
- Funding for projects that reduce diesel combustion NOx and toxic particulate matter emissions.

Appropriate “fair share” mitigation will be determined on a case-by-case basis.

4.4 Impacts to Sensitive Receptors

The separate guidelines of significance discussed below have been developed to answer the following question from the State CEQA Guidelines Appendix G:

- ***The project will expose sensitive receptors to substantial pollutant concentrations.***

Air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis in the County of San Diego the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are diesel-fired particulates and carbon monoxide.

The following Guidelines for Determining Significance must be used for determining whether or not the project will expose sensitive receptors to substantial pollutant concentrations:

- ***The project places sensitive receptors near CO "hotspots" or creates CO "hotspots" near sensitive receptors.***
  (See section 4.2.2 *Carbon* Monoxide)

- ***Project implementation will result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics-Best Available Control Technology or a health hazard index greater than one would be deemed as having a potentially significant impact.***

In addition to impacts from criteria pollutants, typical land development project impacts may include emissions of pollutants identified by the State and Federal government as TACs or HAPs. Under Federal law, 188 substances are listed as HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the Federal program, and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, and is adopting appropriate control measures for sources of these TACs. Once adopted at the State level, each air district will be required to adopt a measure that is equally or more stringent. For typical land use projects that do not propose stationary

source of emissions regulated by APCD, diesel fired particulates are the primary TAC of concern.

In San Diego County, APCD Rule 1210 implements the public notification and risk reduction requirements of State law, and requires facilties with high potential health risk levels to reduce health risks below significant risk levels. In addition, Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-BACT (T-BACT), or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than one. The human health risk analysis is based on the time, duration, and exposures expected.

T-BACT will be determined on a case-by-case basis, however examples of T-BACT include diesel particulate filters, catalytic converters and selective catalytic reduction technology.

4.5 Odor Impacts

The project which is not an agricultural, commercial or an industrial activity subject to SDAPCD standards, as a result of implementation will either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which will affect a considerable number of persons or the public.

APCD Rule 51 (Public Nuisance) and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section §41700 prohibit the emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of the public. Projects required to obtain permits from APCD, typically industrial and some commercial projects, are evaluated by APCD staff for potential odor nuisance and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Odor issues are very subjective by the nature of odors themselves and their measurements are difficult to quantify. As a result, this guideline is qualitative and each project will be reviewed on an individual basis, focusing on the existing and potential surrounding uses and location of sensitive receptors.

5.0 STANDARD MITIGATION AND PROJECT DESIGN CONSIDERATIONS

The project design/mitigation measures suggested in this section are examples of the types of design measures/mitigation that could be applied to a project to reduce identified air quality impacts. If mitigation is required, the actual mitigation recommended for a project will vary depending on the project itself, the specific impact, and other issues that may arise on a case-by-case basis. It is not intended that each mitigation measure identified in this section be applied to every project or that the mitigation be written exactly as presented herein. Similarly, a project may require mitigation that is not specifically identified in this document.

5.1 Typical Construction Phase Air Quality Mitigation Measures

Listed below are some examples of typical air quality design considerations that may be incorporated into projects to avoid impacts or mitigation measures that may be required for construction phase air quality impacts.

PM_{10}

Large-scale mass grading creates fugitive dust, which can cause PM_{10} screening levels to be exceeded. The following are typical mitigation / dust control measures for PM_{10}:

- Water the grading areas a minimum of twice daily to minimize fugitive dust;
- Stabilize graded areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 mph;
- Cover/water onsite stockpiles of excavated material;
- Enforce a 15 mile-per-hour speed limit on unpaved surfaces;
- On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce re-suspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather;
- Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the County to reduce dust generation; and
- Limit the daily grading volumes/area.

NO_x

Large-scale mass grading typically requires earth-moving equipment in the forms of bulldozers, graders, loaders, scrapers, backhoes, dump trucks, water tank trucks, etc. When projects propose activities requiring many pieces of the aforementioned equipment and the exhaust may cause screening levels to be exceeded or create air emissions that exceed Federal or State ambient air quality standards for NO_x, the following may be conditioned as mitigation/control measures:

- Grading or fuel use restriction (e.g., aqueous diesel fuel) may be imposed as a mitigation measure;
- Use of modified equipment incorporating such measures as cooled exhaust gas recirculation or lean-NO_x catalysts;
- Require equipment to be maintained in good tune and to reduce excessive idling time;
- Require the use of equipment models newer than 1996; and
- Require a permit to operate from the SDAPCD for any generators that produce greater than 50 horsepower.

VOCs

If proposed projects require the construction of many phases of building occurring simultaneously, which would result in off-gassing of VOCs from architectural coatings and paints that exceed 75 pounds per day, any of the following design considerations / mitigation measures may be required:

- The use of VOC-free coatings;
- Limited volume usage per day verified with detailed record keeping; and
- Renting or purchasing VOC ERCs.

5.2 Typical Operational Phase Air Quality Mitigation Measures

Listed below are some examples of typical air quality mitigation measures and design control elements for operational phase, non-point source air quality impacts resulting from land development projects. Projects proposing point source air emissions requiring a permit from the SDAPCD will typically have operational conditions, and/or require BACT.

Operational phase air quality impacts resulting from land development projects typically result from increased traffic. Proposed projects having traffic impacts that may exceed a criteria pollutant threshold may be required to construct park and ride lots, construct transit infrastructure, make traffic improvements, include project design measures that encourage carpooling, provide natural gas fueling infrastructure, and provide bicycle lanes and/or pedestrian infrastructure improvements. Another viable option is to fund projects that reduce diesel combustion, NOx and toxic particulate matter emissions.

Odors

Projects proposing activities that create a point source of odor emissions such as sewage lift stations, restaurants, equestrian centers, etc. may be conditioned to require project design measures, equipment design measures, BMPs, and/or off-site disposal of animal waste.

5.3 Additional Mitigation

The 1993 *SCAQMD CEQA Air Quality Handbook* identifies potential mitigation for air quality impacts associated with construction and operational activities. These mitigation measures are in Tables 11-2, 11-3, 11-4, 11-6, and 11-7 of the handbook. Refer to the SCAQMD website for updates (http://www.aqmd.gov/CEQA/hdbk.html) and to access the aforementioned tables. These tables can also be consulted when developing mitigation requirements for individual projects.

6.0 REFERENCES

California Code of Regulations
Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3, §15000-15387. http://ceres.ca.gov/topic/env_law/ceqa/guidelines/
Title 13 & 17; http://www.arb.ca.gov/regs.htm

California Health and Safety Code
Division 26; Parts 1-4 & 6;http://www.leginfo.ca.gov/

California Public Resources Code
California Environmental Quality Act (Public Resource Code §21000-21178).

CEQA Air Quality Handbook. South Coast Air Quality Management District, 1993.

County of San Diego Air Pollution Control District's Rules and Regulations I-XV; http://www.sdapcd.org/rules/rules/randr.html

Zoning Ordinance; Part 6, Section 6318; http://www.sdcounty.ca.gov/dplu/docs/z6000.pdf

Guide to Air Quality Assessment in Sacramento County. Sacramento Metropolitan Air Quality Management District, 2004.

United States Code of Federal Regulations
Title 42; Chapter 55; National Environmental Policy Act. As amended http://www4.law.cornell.edu/uscode/42/ch55.html.
Title 42, Chapter 85, Subchapter 1,The Clean Air Act. http://www.epa.gov/oar/oaq_caa.html

United States Environmental Protection Agency. National Emission Standards For Hazardous Air Pollutants. Code of Federal Regulations. Title 40; Chapter 1; Part 6

ATTACHMENT 2: ENCINA CONSTRUCTION DELIVERY AND STAFFING

Emissions Estimate Worksheets

ENCINA WPCF - BIO-FUEL PROJECT
PHASE #1

MOBILE CONSTRUCTION EQUIPMENT
CONCRETE & MECHANICAL EQUIPMENT, UPS DELIVERIES

PREPARATION BY: **DHK**
DATE: **FEBRUARY 2013**

EQUIPMENT TO/FROM
ASSUME: 25 DELIVERY DAYS OVER COURSE OF PROJECT (150 DAYS)

REFERENCE: TABLE A9-8-A

EQUIPMENT TYPE	QUANTITY	FUEL TYPE (G/D)	OPERATION (HRS/DAY)	CO EF	#/DAY	ROC EF	#/DAY	NO_X EF	#/DAY	SO_X EF	#/DAY	PM_{10} EF	#/DAY
SHORT DISTANCE													
TRUCKS (OFF ROAD) (Concrete/ UPS)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
NUMBER OF DAYS	15				**0.054**		**0.0057**		**0.1251**		**0.0135**		**0.0078**
LONG DISTANCE													
TRUCKS (OFF ROAD) (Equipment)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
TOTAL # OF DAYS	10				**0.036**		**0.0038**		**0.0834**		**0.009**		**0.0052**

FUEL USAGE	
NUMBER OF HOURS	100
Fuel Used per Hour	10
TOTAL FUEL USED	1,000
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	10,140
TOTAL POUNDS OF CO_2	**22,308**

ENCINA WPCF - BIO-FUEL PROJECT | **WORKER VEHICLES**
PHASE #1 | **CONSTRUCTION PERIOD**

PREPARATION BY: **DHK** | **PEAK WORK FORCE: 8**
DATE: **FEBRUARY 2013** | **AVERAGE WORK FORCE: 2**

REFERENCE: TABLE A9-8-A

VEHICLE CATEGORY	QUANTITY	FUEL TYPE (G/D)	AVERAGE TRIP RT=X MILES	TOTAL MILES/DAY	CO EF (g/m)	#/DAY	ROC EF (g/m)	#/DAY	NO_X EF (g/m)	#/DAY	SO_X EF (g/m)	#/DAY	PM_{10} EF (g/m)	#/DAY
Automobile	2	G	60	120	10.15	2.68	0.8	0.21	1.03	0.27	NEG	0	NEG	0
Truck - Light	2	G	60	120	10.15	2.68	0.8	0.21	1.03	0.27	NEG	0	NEG	0
DAILY TOTALS				**240**		**5.37**		**0.42**		**0.54**		**0**		**0**
1.1 WORKERS/CARS														
NUMBER OF WORK DAYS FOR PROJECT	150													
TONS EMISSIONS FOR PROJECT						**0.4024**		**0.0317**		**0.0408**		**0**		**0.0**

FUEL USAGE	
TOTAL MILES DRIVEN	36,000
AVE. MILES/GALLON	20
TOTAL FUEL USED	1,800
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	18,252
TOTAL POUNDS OF CO_2	**40,154**

g= grams 454grams/#
From Table 1.1A in AP-42-Light trucks/autos
SOx/PM_{10} emission rates neglible

ENCINA WPCF - BIO-FUEL PROJECT — **MOBILE CONSTRUCTION EQUIPMENT**
PHASE #2 — **CONCRETE & MECHANICAL EQUIPMENT, UPS DELIVERIES**

PREPARATION BY: **DHK** — **EQUIPMENT TO/FROM**
DATE: **FEBRUARY 2013** — **ASSUME: 42 DELVERY DAYS OVER COURSE OF PROJECT (170 DAYS)**

REFERENCE: TABLE A9-8-A

EQUIPMENT TYPE	QUANTITY	FUEL TYPE (G/D)	OPERATION (HRS/DAY)	CO EF	#/DAY	ROC EF	#/DAY	NO_X EF	#/DAY	SO_X EF	#/DAY	PM_{10} EF	#/DAY
SHORT DISTANCE													
TRUCKS (OFF ROAD) (Concrete/ UPS)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
NUMBER OF DAYS	25				**0.090**		**0.0095**		**0.2085**		**0.0225**		**0.013**
LONG DISTANCE													
TRUCKS (OFF ROAD) (Equipment)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
TOTAL # OF DAYS	17				**0.0612**		**0.00646**		**0.14178**		**0.0153**		**0.0088**

FUEL USAGE	
NUMBER OF HOURS	168
Fuel Used per Hour	10
TOTAL FUEL USED	1,680
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	17,035
TOTAL POUNDS OF CO_2	**37,477**

ENCINA WPCF - BIO-FUEL PROJECT | **WORKER VEHICLES**
PHASE #2 | **CONSTRUCTION PERIOD**

PREPARATION BY: **DHK** | **PEAK WORK FORCE: 10**
DATE: **FEBRUARY 2013** | **AVERAGE WORK FORCE: 3**

REFERENCE: TABLE A9-8-A

VEHICLE CATEGORY	QUANTITY	FUEL TYPE (G/D)	AVERAGE TRIP RT=X MILES	TOTAL MILES/DAY	CO EF (g/m)	#/DAY	ROC EF (g/m)	#/DAY	NO_X EF (g/m)	#/DAY	SO_X EF (g/m)	#/DAY	PM_{10} EF (g/m)	#/DAY
Automobile	3	G	60	180	10.15	4.02	0.8	0.32	1.03	0.41	NEG	0	NEG	0
Truck - Light	2	G	60	120	10.15	2.68	0.8	0.21	1.03	0.27	NEG	0	NEG	0
DAILY TOTALS				**300**		**6.71**		**0.53**		**0.68**		**0**		**0**
1.1 WORKERS/CARS														
NUMBER OF WORK DAYS FOR PROJECT	170													
TONS EMISSIONS FOR PROJECT						**0.5701**		**0.0449**		**0.0579**		**0**		**0.0**

FUEL USAGE	
TOTAL MILES DRIVEN	51,000
AVE. MILES/GALLON	20
TOTAL FUEL USED	2,550
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	25,857
TOTAL POUNDS OF CO_2	**56,885**

g= grams 454grams/#
From Table 1.1A in AP-42-Light trucks/autos
SOx/PM_{10} emission rates neglible

ENCINA WPCF - BIO-FUEL PROJECT — **MOBILE CONSTRUCTION EQUIPMENT**
PHASE #3 — **CONCRETE & MECHANICAL EQUIPMENT, UPS DELIVERIES**

PREPARATION BY: **DHK** — **EQUIPMENT TO/FROM**
DATE: **FEBRUARY 2013** — **ASSUME: 5 DELVERY DAYS OVER COURSE OF PROJECT (170 DAYS)**

REFERENCE: TABLE A9-8-A

EQUIPMENT TYPE	QUANTITY	FUEL TYPE (G/D)	OPERATION (HRS/DAY)	CO EF	#/DAY	ROC EF	#/DAY	NO_X EF	#/DAY	SO_X EF	#/DAY	PM_{10} EF	#/DAY
SHORT DISTANCE													
TRUCKS (OFF ROAD) (Concrete/ UPS)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
NUMBER OF DAYS	3				**0.0108**		**0.00114**		**0.02502**		**0.0027**		**0.0016**
LONG DISTANCE													
TRUCKS (OFF ROAD) (Equipment)	1	D	4	1.800	7.20	0.19	0.76	4.17	16.68	0.45	1.80	0.26	1.04
TOTAL	1				7.20		0.76		16.68		1.80		1.04
TOTAL # OF DAYS	2				**0.0072**		**0.00076**		**0.01668**		**0.0018**		**0.001**

FUEL USAGE	
NUMBER OF HOURS	20
Fuel Used per Hour	10
TOTAL FUEL USED	200
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	2,028
TOTAL POUNDS OF CO_2	**4,462**

ENCINA WPCF - BIO-FUEL PROJECT | **WORKER VEHICLES**
PHASE #3 | **CONSTRUCTION PERIOD**

PREPARATION BY: **DHK** | **PEAK WORK FORCE: 5**
DATE: **FEBRUARY 2013** | **AVERAGE WORK FORCE: 3**

REFERENCE: TABLE A9-8-A

VEHICLE CATEGORY	QUANTITY	FUEL TYPE (G/D)	AVERAGE TRIP RT=X MILES	TOTAL MILES/DAY	CO EF (g/m)	#/DAY	ROC EF (g/m)	#/DAY	NO_X EF (g/m)	#/DAY	SO_X EF (g/m)	#/DAY	PM_{10} EF (g/m)	#/DAY
Automobile	2	G	60	120	10.15	2.68	0.8	0.21	1.03	0.27	NEG	0	NEG	0
Truck - Light	2	G	60	120	10.15	2.68	0.8	0.21	1.03	0.27	NEG	0	NEG	0
DAILY TOTALS				**240**		**5.37**		**0.42**		**0.54**		**0**		**0**
1.1 WORKERS/CARS														
NUMBER OF WORK DAYS FOR PROJECT	170													
TONS EMISSIONS FOR PROJECT						**0.4561**		**0.0359**		**0.0463**		**0**		**0.0**

FUEL USAGE	
TOTAL MILES DRIVEN	40,800
AVE. MILES/GALLON	20
TOTAL FUEL USED	2,040
CO_2 EF KG/GALLON	10.14
TOTAL KG OF CO_2	20,686
TOTAL POUNDS OF CO_2	**45,508**

g= grams 454grams/#
From Table 1.1A in AP-42-Light trucks/autos
SOx/PM_{10} emission rates neglible

ATTACHMENT 3: CONSTRUCTION EQUIPMENT

Emissions Estimate Worksheets

SCAB Fleet Average Emission Factors (Diesel)

2014

CONSTRUCTION PHASE 1 WILL START IN EARLY 2014- 2015

Air Basin	SC

EMISSION FACTORS USED FOR ENCINA BIO-FUEL PROJECT APPROPRIATE FOR CONSTRUCTION EMISSION

									Bio-Fuel Receiving Facilities Phase 1 Working Days 150 Maximum workers 8 average worker 2								
		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	Operating Hours	Utilization factor	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**			**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts Composite		0.0483	0.1877	0.2867	0.0004	0.0184	34.7	0.0044									
Air Compressors	120	0.0758	0.3216	0.4682	0.0006	0.0416	47.0	0.0068									
Concrete/Industrial Saws Composite		0.0917	0.4031	0.5267	0.0007	0.0413	58.5	0.0083									
Cranes Composite		0.1276	0.4553	1.1066	0.0014	0.0466	129	0.0115	120.0000	0.2000	3.06120553	10.9264587	26.5590589	0.03304511	1.11876752	3087.24492	0.27620767
Crawler Tractors Composite		0.1499	0.5767	1.0853	0.0013	0.0644	114	0.0135			0	0	0	0	0	0	0
Dumpers/Tenders Composite		0.0095	0.0317	0.0595	0.0001	0.0027	7.6	0.0009			0	0	0	0	0	0	0
Excavators Composite		0.1143	0.5289	0.8299	0.0013	0.0428	120	0.0103	16.0000	0.5000	0.91413226	4.23115826	6.63954971	0.01052307	0.34277962	956.643929	0.08248068
Forklifts Composite		0.0497	0.2215	0.3551	0.0006	0.0178	54.4	0.0045									
Graders Composite		0.1362	0.5987	1.0796	0.0015	0.0539	133	0.0123			0	0	0	0	0	0	0
Off-Highway Tractors Composite		0.1986	0.7438	1.6111	0.0017	0.0767	151	0.0179	0.0000	0.0000	0	0	0	0	0	0	0
Off-Highway Trucks Composite		0.2034	0.6148	1.6679	0.0027	0.0579	260	0.0183	72.0000	0.2500	3.66058932	11.0668125	30.0228082	0.04785082	1.04197162	4681.14646	0.3302891
Other General Industrial Equipmen Composite		0.1448	0.4985	1.2360	0.0016	0.0527	152	0.0131									
Other Material Handling Equipment Composite		0.1381	0.4814	1.2068	0.0015	0.0511	141	0.0125			0	0	0	0	0	0	0
Pavers Composite		0.1429	0.5277	0.8112	0.0009	0.0564	77.9	0.0129			0	0	0	0	0	0	0
Paving Equipment Composite		0.1082	0.4273	0.7312	0.0008	0.0502	68.9	0.0098	8.0000	0.7500	0.64938452	2.56376574	4.38714954	0.00475817	0.30133209	413.652228	0.05859292
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005			0	0	0	0	0	0	0
Rollers Composite		0.0912	0.4018	0.6164	0.0008	0.0419	67.1	0.0082			0	0	0	0	0	0	0
Surfacing Equipment Composite		0.1194	0.4930	1.1688	0.0017	0.0427	166	0.0108			0	0	0	0	0	0	0
Tractors/Loaders/Backhoes Composite		0.0728	0.3747	0.4977	0.0008	0.0341	66.8	0.0066			0	0	0	0	0	0	0
Welders Composite		0.0589	0.2041	0.2436	0.0003	0.0206	25.6	0.0053									

#'S	**8.28531163**	**28.7881952**	**67.6085663**	**0.09617717**	**2.80485085**	**9138.68754**	**0.74757037**
TONS	**0.00414266**	**0.0143941**	**0.03380428**	**4.8089E-05**	**0.00140243**	**4.56934377**	**0.00037379**
	ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**

PHASE 1 BIO-FUEL RECEIVING PHASE #1 (EIGHT MONTHS)

SCAB Fleet Average Emission Factors (Diesel)

2014

CONSTRUCTION PHASE 1 WILL START IN EARLY 2014- 2015

Air Basin	SC

EMISSION FACTORS USED FOR ENCINA BIO-FUEL PROJECT APPROPRIATE FOR CONSTRUCTION E

									PHASE 2 GAS CONDITIONING EQUIPMENT AND CATALYST							
		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	Operating Hours	Utilization factor	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**			**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts Composite		0.0483	0.1877	0.2867	0.0004	0.0184	34.7	0.0044									
Air Compressors	120	0.0758	0.3216	0.4682	0.0006	0.0416	47.0	0.0068			0	0	0	0	0	0	0
Concrete/Industrial Saws Composite		0.0917	0.4031	0.5267	0.0007	0.0413	58.5	0.0083			0	0	0	0	0	0	0
Cranes Composite		0.1276	0.4553	1.1066	0.0014	0.0466	129	0.0115	150.0000	0.2000	3.82650691	13.6580734	33.1988237	0.04130638	1.3984594	3859.05614	0.34525958
Crawler Tractors Composite		0.1499	0.5767	1.0853	0.0013	0.0644	114	0.0135			0	0	0	0	0	0	0
Dumpers/Tenders Composite		0.0095	0.0317	0.0595	0.0001	0.0027	7.6	0.0009			0	0	0	0	0	0	0
Excavators Composite		0.1143	0.5289	0.8299	0.0013	0.0428	120	0.0103	24.0000	0.5000	1.37119839	6.34673739	9.95932456	0.01578461	0.51416943	1434.96589	0.12372102
Forklifts Composite		0.0497	0.2215	0.3551	0.0006	0.0178	54.4	0.0045			0	0	0	0	0	0	0
Graders Composite		0.1362	0.5987	1.0796	0.0015	0.0539	133	0.0123			0	0	0	0	0	0	0
Off-Highway Tractors Composite		0.1986	0.7438	1.6111	0.0017	0.0767	151	0.0179			0	0	0	0	0	0	0
Off-Highway Trucks Composite		0.2034	0.6148	1.6679	0.0027	0.0579	260	0.0183	104.0000	0.2500	5.2875179	15.9853958	43.3662785	0.06911785	1.50507012	6761.656	0.47708425
Other General Industrial Equipmen Composite		0.1448	0.4985	1.2360	0.0016	0.0527	152	0.0131									
Other Material Handling Equipment Composite		0.1381	0.4814	1.2068	0.0015	0.0511	141	0.0125			0	0	0	0	0	0	0
Pavers Composite		0.1429	0.5277	0.8112	0.0009	0.0564	77.9	0.0129									
Paving Equipment Composite		0.1082	0.4273	0.7312	0.0008	0.0502	68.9	0.0098	8.0000	0.7500	0.64938452	2.56376574	4.38714954	0.00475817	0.30133209	413.652228	0.05859292
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005									
Rollers Composite		0.0912	0.4018	0.6164	0.0008	0.0419	67.1	0.0082			0	0	0	0	0	0	0
Surfacing Equipment Composite		0.1194	0.4930	1.1688	0.0017	0.0427	166	0.0108			0	0	0	0	0	0	0
Tractors/Loaders/Backhoes Composite		0.0728	0.3747	0.4977	0.0008	0.0341	66.8	0.0066			0	0	0	0	0	0	0
Welders Composite		0.0589	0.2041	0.2436	0.0003	0.0206	25.6	0.0053	0.0000	0.0000	0	0	0	0	0	0	0

#'S	11.1346077	38.5539723	90.9115762	0.13096701	3.71903104	12469.3303	1.00465778
TONS	0.0055673	0.01927699	0.04545579	6.5484E-05	0.00185952	6.23466514	0.00050233
	ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**

PHASE 2 GAS CONDITIONING FACILITIES (9 MONTHS)

SCAB Fleet Average Emission Factors (Diesel)

2014

CONSTRUCTION PHASE 1 WILL START IN EARLY 2014- 2015

Air Basin	SC

EMISSION FACTORS USED FOR ENCINA BIO-FUEL PROJECT APPROPRIATE FOR CONSTRUCTION E

									PHASE 3 INSTALLATION OF ENGINE #5								
		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	Operating Hours	Utilization factor	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)	(lb/phase)
Equipment	MaxHP	ROG	CO	NOX	SOX	PM	CO2	CH4			ROG	CO	NOX	SOX	PM	CO2	CH4
Aerial Lifts Composite		0.0483	0.1877	0.2867	0.0004	0.0184	34.7	0.0044			0	0	0	0	0	0	0
Air Compressors	120	0.0758	0.3216	0.4682	0.0006	0.0416	47.0	0.0068			0	0	0	0	0	0	0
Concrete/Industrial Saws Composite		0.0917	0.4031	0.5267	0.0007	0.0413	58.5	0.0083			0	0	0	0	0	0	0
Cranes Composite		0.1276	0.4553	1.1066	0.0014	0.0466	129	0.0115	24.0000	0.2000	0.61224111	2.18529175	5.31181179	0.00660902	0.2237535	617.448983	0.055241533
Crawler Tractors Composite		0.1499	0.5767	1.0853	0.0013	0.0644	114	0.0135			0	0	0	0	0	0	0
Dumpers/Tenders Composite		0.0095	0.0317	0.0595	0.0001	0.0027	7.6	0.0009			0	0	0	0	0	0	0
Excavators Composite		0.1143	0.5289	0.8299	0.0013	0.0428	120	0.0103			0	0	0	0	0	0	0
Forklifts Composite		0.0497	0.2215	0.3551	0.0006	0.0178	54.4	0.0045			0	0	0	0	0	0	0
Graders Composite		0.1362	0.5987	1.0796	0.0015	0.0539	133	0.0123			0	0	0	0	0	0	0
Off-Highway Tractors Composite		0.1986	0.7438	1.6111	0.0017	0.0767	151	0.0179			0	0	0	0	0	0	0
Off-Highway Trucks Composite		0.2034	0.6148	1.6679	0.0027	0.0579	260	0.0183			0	0	0	0	0	0	0
Other General Industrial Equipmen Composite		0.1448	0.4985	1.2360	0.0016	0.0527	152	0.0131			0	0	0	0	0	0	0
Other Material Handling Equipment Composite		0.1381	0.4814	1.2068	0.0015	0.0511	141	0.0125			0	0	0	0	0	0	0
Pavers Composite		0.1429	0.5277	0.8112	0.0009	0.0564	77.9	0.0129									
Paving Equipment Composite		0.1082	0.4273	0.7312	0.0008	0.0502	68.9	0.0098			0	0	0	0	0	0	0
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005									
Rollers Composite		0.0912	0.4018	0.6164	0.0008	0.0419	67.1	0.0082			0	0	0	0	0	0	0
Surfacing Equipment Composite		0.1194	0.4930	1.1688	0.0017	0.0427	166	0.0108			0	0	0	0	0	0	0
Tractors/Loaders/Backhoes Composite		0.0728	0.3747	0.4977	0.0008	0.0341	66.8	0.0066			0	0	0	0	0	0	0
Welders Composite		0.0589	0.2041	0.2436	0.0003	0.0206	25.6	0.0053	0.0000	0.0000	0	0	0	0	0	0	0

#'S	0.61224111	2.18529175	5.31181179	0.00660902	0.2237535	617.448983	0.055241533
TONS	0.00030612	0.00109265	0.00265591	3.3045E-06	0.00011188	0.30872449	2.76208E-05
	ROG	CO	NOX	SOX	PM	CO2	CH4

PHASE 3 ENGINE #5 MECHANICAL PLACEMENT (9 MONTHS)

ATTACHMENT 4: PRO FORMA DIGESTER GAS AND NATURAL GAS ANALYSIS

Emissions Estimate Worksheets

Encina WPCF - Bio-Fuel Project
Emissions Summary Table

PRO FORMA ANALYSES DATA "NO PROJECT" AND "PROJECT" USING CY 2012 BASELINE DATA
EMISSION CONTROLS INCLUDED 90% CO 90% VOC & 75% SOX NG 1000 BTU/CFT DIGESTER GAS 600 BTU/CFT

BASE YEAR: 2012	AF MMCFT	TOTAL MMCFT	EF NOX/MMCFT	EF CO/MMCFT	EF VOC/MMCFT	EF SOX/MMCFT	EF PM10/MMCF	CO2EQ METRIC TONS /YEAR
COGENERATION DG	0	224	110.51	810.39	136.29	2	27.6	6,998
COGENERATION NG		0	207.8	1108.29	332.49	2	27.6	0
BIOSOLIDS DRYER DG	0	5.4	55.38	151.64	34.48	21.13	92.3	169
BIOSOLIDS DRYER NG		64.8	50	84	5.5	0.6	7.6	3,436
FLARE DG	0	0	48	1.8	12.1	2	12	0
TOTAL DIG GAS		229.4						
TOTAL NAT GAS	0%	64.8						

"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "

CY 2012	NOX TONS/YEAR	CO TONS/YEAR	VOC TONS/YEAR	SOX TONS/YEAR	PM10 TONS/YEAR	CO2EQ METRIC TONS /YEAR
COGENERATION COMBINED	12.37712	90.76368	15.26448	0.224	3.0912	6998
BIOSOLIDS DRYER COMBINED	1.769526	3.131028	0.271296	0.076491	0.49545	3604
FLARE	0	0	0	0	0	0
TOTAL	14.146646	93.894708	15.535776	0.300491	3.58665	10603

PHASE 1 - CY 2015	AF MMCFT	MMCFT (1)	EF NOX/MMCFT	EF CO/MMCFT	EF VOC/MMCFT	EF SOX/MMCFT	EF PM10/MMCF	CO2EQ METERIC TONS /YEAR
COGENERATION DG		224	110.51	810.39	136.29	2	27.6	6,998
COGENERATION NG		0	207.8	1108.29	332.49	2	27.6	0
BIOSOLIDS DRYER DG	58	95	55.38	151.64	34.48	5.3	92.3	2,968
BIOSOLIDS DRYER NG		20.2	50	84	5.5	0.6	7.6	1,071
FLARE DG		0	48	1.8	12.1	2	12	0
TOTAL DIG GAS	58	319						
TOTAL NAT GAS	18%	20.2						

(1) Cogeneration will remain per current APCD Permit Requirements.

"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "

PHASE 1 - CY 2015	NOX TONS/YEAR	CO TONS/YEAR	VOC TONS/YEAR	SOX TONS/YEAR	PM10 TONS/YEAR	CO2EQ METERIC TONS /YEAR
COGENERATION COMBINED	12.37712	90.76368	15.26448	0.224	3.0912	6998
BIOSOLIDS DRYER COMBINED	3.13555	8.0513	1.69335	0.25781	4.46101	4039
FLARE	0	0	0	0	0	0
TOTAL	15.51267	98.81498	16.95783	0.48181	7.55221	11037

Encina WPCF - Bio-Fuel Project
Emissions Summary Table

PHASE 2 - CY 2020	AF MMCFT	MMCFT	EF NOX/MMCFT	EF CO/MMCFT	EF VOC/MMCFT	EF SOX/MMCFT	EF PM10/MMCF	CO2EQ METERIC TONS /YEAR
COGENERATION DG	118	395.7	110.51	81.039	13.629	0.5	27.6	12,362
COGENERATION NG		0	207.8	110.83	33.249	2	27.6	0
BIOSOLIDS DRYER DG		36.3	55.38	151.64	34.48	5.3	92.3	1,134
BIOSOLIDS DRYER NG		70.4	50	84	5.5	0.6	7.6	3,733
FLARE DG		0	48	1.8	12.1	2	12	0
TOTAL DG GAS	118	432						
TOTAL NAT GAS	13%	70.4		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

PHASE 2 - CY 2020	NOX TONS/YEAR	CO TONS/YEAR	VOC TONS/YEAR	SOX TONS/YEAR	PM10 TONS/YEAR	CO2EQ METERIC TONS /YEAR
COGENERATION COMBINED	21.8644035	16.03356615	2.69649765	0.098925	5.46066	12362
BIOSOLIDS DRYER COMBINED	2.765147	5.709066	0.819412	0.117315	1.942765	4867
FLARE	0	0	0	0	0	0
TOTAL	24.6295505	21.74263215	3.51590965	0.21624	7.403425	17229

PHASE 3 - CY 2025	AF MMCFT	MMCFT	EF NOX/MMCFT	EF CO/MMCFT	EF VOC/MMCFT	EF SOX/MMCFT	EF PM10/MMCF	CO2EQ METERIC TONS /YEAR
COGENERATION DG	166	427	110.51	81.039	13.629	0.5	27.6	13,340
COGENERATION NG		0	207.8	110.83	33.249	2	27.6	0
BIOSOLIDS DRYER DG		106	55.38	151.64	34.48	5.3	92.3	3,312
BIOSOLIDS DRYER NG		43.2	50	84	5.5	0.6	7.6	2,290
FLARE DG			48	1.8	12.1	2	12	0
TOTAL DG	166	533						
TOTAL NAT GAS	11%	43.2		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

PHASE 3 - CY 2025	NOX TONS/YEAR	CO TONS/YEAR	VOC TONS/YEAR	SOX TONS/YEAR	PM10 TONS/YEAR	CO2EQ METERIC TONS /YEAR
COGENERATION COMBINED	23.593885	17.3018265	2.9097915	0.10675	5.8926	13340
BIOSOLIDS DRYER COMBINED	4.01514	9.85132	1.94624	0.29386	5.05606	5602
FLARE	0	0	0	0	0	0
TOTAL	27.609025	27.1531465	4.8560315	0.40061	10.94866	18942

ATTACHMENT 5: PRO FORMA GREENHOUSE GAS ANALYSIS

Emissions Estimate Worksheets

Encina WPCF - Bio-Fuel Project
Emissions Summary Table

PRO FORMA ANALYSES DATA "NO PROJECT" AND "PROJECT" USING CY 2012 BASELINE DATA
GREENHOUSE GAS EMISSION TABLE (BIO-GENIC AND NON-BIO-GENIC) **NG 1000 BTU/CFT** **DIGESTER GAS 600 BTU/CFT**

BASE YEAR: 2012	AF MMCFT	TOTAL MMCFT	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
			PF1	PF 21	PF 310			
COGENERATION DG	0	224	6,998	9.0317	26.2483	7,033	0	7,033
COGENERATION NG		0	0	0.0000	0.0000		0	0
BIOSOLIDS DRYER DG	0	5.4	169	0.2177	0.6328	170	0	170
BIOSOLIDS DRYER NG		64.8	3,436	1.3608	2.0088		3,439	3,439
FLARE DG	0	0	0	0.0000	0.0000	0	0	0
TOTAL DIG GAS		229.4						
TOTAL NAT GAS	0%	64.8		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

CY 2012	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
COGENERATION COMBINED	6,998	9	26			7033
BIOSOLIDS DRYER COMBINED	3,604	0	1			3605
FLARE	0	0	0			0
TOTAL	10603	9	27	7203	3439	10639

PHASE 1 - CY 2015	AF MMCFT	MMCFT (1)	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
			PF1	PF 21	PF 310			
COGENERATION DG		224	6,998	9.0317	26.2483	7,033	0	7,033
COGENERATION NG		0	0	0.0000	0.0000		0	0
BIOSOLIDS DRYER DG	58	95	2,968	3.8304	11.1321	2,983	0	2,983
BIOSOLIDS DRYER NG		20.2	1,071	0.4242	0.6262		1,072	1,072
FLARE DG		0	0	0.0000	0.0000	0	0	0
TOTAL DIG GAS	58	319						
TOTAL NAT GAS	18%	20.2		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

PHASE 1 - CY 2015	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
COGENERATION COMBINED	6,998	9	26			7033
BIOSOLIDS DRYER COMBINED	4,039	4	11			4054
FLARE	0	0	0			0
TOTAL	11037	13	37	10016	1072	11087

Encina WPCF - Bio-Fuel Project
Emissions Summary Table

PRO FORMA ANALYSES DATA "NO PROJECT" AND "PROJECT" USING CY 2012 BASELINE DATA
GREENHOUSE GAS EMISSION TABLE (BIO-GENIC AND NON-BIO-GENIC) **NG 1000 BTU/CFT** **DIGESTER GAS 600 BTU/CFT**

PHASE 2 - CY 2020	AF MMCFT	MMCFT	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
			PF1	PF 21	PF 310			
COGENERATION DG	118	395.7	12,362	15.9546	46.3681	12,425	0	12,425
COGENERATION NG		0	0	0.0000	0.0000		0	0
BIOSOLIDS DRYER DG		36.3	1,134	1.4636	4.2536	1,140	0	1,140
BIOSOLIDS DRYER NG		70.4	3,733	1.4784	2.1824		3,736	3,736
FLARE DG		0	0	0.0000	0.0000	0	0	0
TOTAL DG GAS	118	432						
TOTAL NAT GAS	13%	70.4		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

PHASE 2 - CY 2020	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
COGENERATION COMBINED	12,362	16	46			12425
BIOSOLIDS DRYER COMBINED	4,867	1	4			4872
FLARE	0	0	0			0
TOTAL	17229	17	51	13565	3736	17297

PHASE 3 - CY 2025	AF MMCFT	MMCFT	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
			PF1	PF 21	PF 310			
COGENERATION DG	166	427	13,340	17.2166	50.0359	13,408	0	13,408
COGENERATION NG		0	0	0.0000	0.0000		0	0
BIOSOLIDS DRYER DG		106	3,312	4.2739	12.4211	3,328	0	3,328
BIOSOLIDS DRYER NG		43.2	2,290	0.9072	1.3392		2,293	2,293
FLARE DG			0	0.0000	0.0000	0	0	0
TOTAL DG	166	533						
TOTAL NAT GAS	11%	43.2		"= % OF AF AS COMPARED TO TOTAL SITE DIGESTER GAS "				

PHASE 3 - CY 2025	CO2 MT CO2eq	CH4 MTCO2eq	N2O MTCO2eq	Bio-genic CO2EQ MT	Non- Biogenic CO2EQ MT	CO2EQ METRIC TONS /YEAR
COGENERATION COMBINED	13,340	17	50			13408
BIOSOLIDS DRYER COMBINED	5,602	4	12			5619
FLARE	0	0	0			0
TOTAL	18942	21	62	16736	2293	19026