



**Mojave Desert Air Quality Management District**

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Visit our web site: <http://www.mdaqmd.ca.gov>

Eldon Heaston, Executive Director

July 20, 2010

Ryan O'Keefe, Vice President  
Genesis Solar LLC  
700 Universe Boulevard  
Juno Beach, Florida 33408

**Final Determination of Compliance for the Genesis Solar Energy Project**

Dear:

The Mojave Desert Air Quality Management District (MDAQMD) has completed the decision on the proposed Genesis Solar Energy Project (GSEP). Enclosed please find the Final Determination of Compliance (FDOC) for GSEP, prepared pursuant to MDAQMD Rule 1306.

If you have any questions regarding this action or the enclosure, please contact Mr. Richard T. Wales at (760) 245-1661, x 1803.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan J. De Salvio". The signature is fluid and extends across the width of the page.

**Alan J. De Salvio**  
Supervising Air Quality Engineer

Enclosures: PDOC  
Public notice

cc: Chief, Air Permits Office USEPA Region IX  
Chief, Stationary Source Division CARB  
Mike Monasmith - CEC Project Manager  
Will Walters, Aspen Environmental Group  
Email Meg Russell – NextEra Energy  
Tricia Bernhardt – Tetra Tech, EC Project Manager

AJD/rtw

GSEP PDOC cover.doc

**Final Decision/  
Determination of Compliance**  
(Final New Source Review Document)

Genesis Solar Energy Project  
located approximately 25 miles west of  
Blythe, CA.

**Eldon Heaston**  
**Executive Director**  
Mojave Desert Air Quality Management District

July 20, 2010

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## List of Abbreviations

acfm	Actual cubic feet per minute
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
<b>APCO</b>	<b>Air Pollution Control Officer</b>
ASME	American Society of Mechanical Engineers
ATC	Authority To Construct
ATCM	Airborne Toxic Control Measure
AVAQMD	Antelope Valley Air Quality Management District
B	Boiler
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
CARB	California Air Resources Board
CATEF	California Air Toxics Emission Factors
CEC	California Energy Commission
CEMS	Continuous Emissions Monitoring System
CERMS	Continuous Emission Rate Monitoring System
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO	Carbon Monoxide
CT	Cooling Tower
CTG	Combustion Turbine Generator
dscf	Dry Standard Cubic Feet
ERC	Emission Reduction Credit
F	Fuel Dispensing
°F	Degrees Fahrenheit (Temperature)
FDOC	Final Determination of Compliance
FONA	Federal Ozone Non-Attainment Area
gph	Gallons per hour
GSEP	Genesis Solar Energy Project
HAP	Hazardous Air Pollutant (Federal)
HARP	Hot Spots Analysis and Reporting Program
HDPP	High Desert Power Project
HHV	Higher Heating Value
hp	Horsepower
hr	Hour
HRA	Health Risk Assessment
HRSG	Heat Recovery Steam Generator
HTF	Heat Transfer Fluid
ICE	Internal Combustion Engine
LAER	Lowest Achievable Emission Rate

lb	Pound
MACT	Maximum Achievable Control Technology
$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter
MDAQMD	Mojave Desert Air Quality Management District
MMBtu	Millions of British Thermal Units
n/a	Not applicable
NAAQS	National Ambient Air Quality Standard
$\text{NO}_2$	Nitrogen Dioxide
$\text{NO}_x$	Oxides of Nitrogen
NSPS	New Source Performance Standard
$\text{O}_2$	Molecular Oxygen
OEHHA	Office of Environmental Health Hazard Assessment
OLM	Ozone Limiting Method
o/o	Owner/Operator
PAH	Polycyclic Aromatic Hydrocarbons
PDOC	Preliminary Determination of Compliance
$\text{PM}_{2.5}$	Fine Particulate, Respirable Fraction $\leq 2.5$ microns in diameter
$\text{PM}_{10}$	Fine Particulate, Respirable Fraction $\leq 10$ microns in diameter
ppmvd	Parts per million by volume, dry
ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration
PUC	Public Utilities Commission
RSP	Rapid Start Process
S	Sulfur
SCAQMD	South Coast Air Quality Management District
SJVAPCD	San Joaquin Valley Unified Air Pollution Control District
SCLA	Southern California Logistics Airport
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
$\text{SO}_2$	Sulfur Dioxide
$\text{SO}_x$	Oxides of Sulfur
SSG	Solar Steam Generator System
STG	Steam Turbine Generator
TAC	Toxic Air Contaminant (California)
TOG	Total Organic Gases
tpy	Tons per Year
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

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## 1. Introduction

The Mojave Desert Air Quality Management District (MDAQMD) received Applications for New Source Review for the Genesis Solar Energy Project (GSEP) and a Request for Agency Participation and Application for Certification dated October 6, 2009, and received on October 8, 2009.<sup>1</sup> The applicant is Genesis Solar, LLC, a Delaware limited liability company and wholly owned subsidiary of NextEra Energy Resources, LLC. The MDAQMD sent a letter dated October 27, 2009 notifying the SEC on the intent to participate.<sup>2</sup> Additional permit applications and application information was submitted with a letters dated November 12, 2009<sup>3</sup>, February 12, 2010<sup>4</sup> and March 19, 2010<sup>5</sup> For clarity and consistency, the MDAQMD will herein refer to this project as the “GSEP” or “Project”. This NSR document pertains to GSEP.

As required by MDAQMD Rule 1306(E) (1)(a), the “Preliminary Decision – Determination of Compliance” (PDOC)<sup>6</sup> was released on February 18, 2010. The PDOC reviews the proposed project, evaluating worst-case or maximum air quality impacts, and establishes control technology requirements and related air quality permit conditions. The PDOC represents MDAQMD’s preliminary pre-construction compliance review of the proposed project, to determine whether construction and operation of the proposed project will comply with all applicable MDAQMD rules and regulations.

The MDAQMD received 3 sets of written comments on the PDOC. The comments were from CEC<sup>7</sup>, Tetra Tech<sup>8</sup>, and Adams Broadwell Joseph& Cardozo<sup>9</sup>. These comments can be summarized as follows:

1. Auxiliary Boilers – use of, emission rates and permit conditions,
2. Emergency Engines – Tier level and permit conditions,
3. This site does not have a gas turbine,
4. The rules referee to the MDAQMD Rules,
5. Rewrite the description of the proposed facility,
6. Ullage Vent System rewrite the equipment description, permit conditions and add a carbon absorption control system,
7. Cooling Tower – permit conditions,
8. Application needed for the gasoline dispensing system,
9. Land treatment Unit – Emission and HRA
10. Toxic Emission from cooling tower, boilers and ICEs,
11. HRA needs updating, and
12. Ambient Air Modeling for the 1 hour NO<sub>x</sub> NAAQS

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<sup>1</sup> Letter from Eileen Allen (CEC) to ‘Agency Distribution List’.

<sup>2</sup> A. De Salvio (MDAQMD) to A. Solomon (CEC), October 27, 2009.

<sup>3</sup> Letter from Tetra Tech to A. DeSalvio, November 12, 2009.

<sup>4</sup> Letter from Tetra Tech to CEC, February 12, 2009.

<sup>5</sup> Letter from Tetra Tech to MDAQMD, March 10, 2010

<sup>6</sup> PDOC dated February 18, 2010

<sup>7</sup> Comment letter from CEC, March 10, 2010

<sup>8</sup> Comment letter from Tetra Tech, March 10, 2010

<sup>9</sup> Comment letter from Adams Broadwell Joseph& Cardozo, March 12, 2010

Therefore, the MDAQMD send a letter<sup>10</sup> to Genesis Solar LLC requesting additional information for the GSEP. On behalf GSEP Tetra Tech EC, INC submitted additional information is letters dated May 14, 2010<sup>11</sup> and June 18, 2010<sup>12</sup>.

## **2. Project Location**

The Project is a solar thermal electric generating facility proposed on approximately 4,640 acres, with an eastern and western portion. Once constructed, the Project would permanently occupy approximately 1,800 acres within the eastern portion (the Project footprint), plus approximately 90 acres of linear facilities. The remainder of the acreage is not anticipated to be needed for the Project. The Project is in the unincorporated area of Riverside County, California approximately twenty five (25) miles west of Blythe, California (CA). on land owned by the Federal Government and managed by the Bureau of Land Management (BLM). The Project site has been designated unclassified for the Federal 8-hour ozone ambient air quality standard (NAAQS) and for the PM<sub>10</sub> ambient air quality standards (NAAQS). The Project site has been designated nonattainment for the State 8-hour ozone ambient air quality standard (CAAQS) and for the 24 hour PM<sub>10</sub> ambient air quality standards (CAAQS). The area is attainment or unclassified for all other federal and state AAQS and averaging times. The proposed site consists of flat undeveloped desert terrain.

## **3. Description of Project**

The proposed facility will consist of two 125 MW (gross) solar thermal units. The Project uses parabolic trough solar thermal technology to generate electricity. In each power generating unit or power block, the proposed technology uses a steam turbine generator (STG) fed from a solar steam generator (SSG). SSGs receive heat transfer fluid (HTF) from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun.

Each of the two facilities will consist of a solar array field, auxiliary low pressure steam boiler for the HTF freeze protection system and plant start-up steam, steam turbine, emergency generator set, emergency fire pump system, an HTF ullage/expansion system with a nitrogen blanket and a carbon absorption control system, wet cooling tower, electrical interconnections, control room, water treatment, maintenance/warehouse facility, a parking lot, and several small adjacent buildings for support services. The two power blocks share a main office building, storage facilities, a central switchyard, access roads and a land treatment unit to treat HTF contaminated soil.

GSEP is proposing to install:

- two (2) auxiliary natural gas fired low pressure steam boilers for maintaining the HTF temperature and provide start-up steam each rated at - 30 MMBtu/hr
- two (2) HTF ullage/expansion tanks with nitrogen blanked and carbon absorption control system

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<sup>10</sup> Letter from MDAQMD to GSEP dated April 28, 2010

<sup>11</sup> Letter from Tetra Tech to MDAQMD dated May 14, 2010

<sup>12</sup> Letter from Tetra Tech to MDAQMD dated June 18, 2010

- two (2) cooling towers with a water circulation rate of 94,623 gpm and each with drift eliminator
- two (2) latest Tier diesel fueled emergency fire pump engines rated at 315 hp each
- two (2) latest Tier diesel fueled emergency generator set rated at 1341 hp each

The internal combustion engines will meet all applicable California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) latest Tier emissions standards for emergency engines depending upon engine size, year of manufacture, and service category. Additionally, the engines will meet the requirements of the CARB Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines.

Proposed equipment specifications, for emissions sources, are summarized as follows:

#### **Auxiliary Low Pressure Steam Boilers to Heat HTF (2)**

- Manufacturer: Rentech Boiler (or equivalent)
- Model: D-Type Watertube
- Fuel: Natural Gas
- Rated Heat Input: 30 MMBtu/hr
- Fuel consumption: ~29,412 scf/hr (Gas HHV 1020 Btu/scf)
- Exhaust flow: 17,700 acfm, at 100% load
- Exhaust temperature: ~300 degrees Fahrenheit (°F)
- Low NO<sub>x</sub> burner (9 ppmv)

#### **Internal Combustion Engines – Fire Pump (2)**

- Manufacturer: John Deere (or equivalent)
- Model JU6H-UFAD98
- Emission Standard: Tier III or latest Tier for an emergency fire pump
- Fuel: Diesel or distillate oil (15 ppmw S)
- Rated horsepower: 315 hp
- Fuel consumption: ~15.0 gallons per hour (gph)
- Exhaust flow: 1,400 acfm
- Exhaust temperature: 961 °F

## **Internal Combustion Engines - Emergency Electrical Generators (2)**

- Manufacturer: Caterpillar (or equivalent)
- Model: C32 ATAAC (V-12, 4 Stroke)
- Emissions Standard: Tier III or latest Tier for an emergency electrical generator
- Fuel: Diesel or distillate oil (15 ppmw S)
- Rated horsepower: ~1341 hp
- Fuel consumption: ~ 72 gallons per hour (gph)
- Exhaust flow: 8,129 acfm
- Exhaust temperature: 893 °F

## **Cooling Towers (2)**

- Manufacturer: SPX Cooling Technologies, Inc. (or equivalent)
- Number of Cells: 7
- Number of Fans: 7 (1,098,000 acfm each)
- Water circulation rate: ~ 94,623 gallons per minute (gpm)
- Drift rate: less than or equal to 0.0005%
- Expected average TDS: ~ 5,000 ppmw

## **HTF Ullage/Expansion system/Control System (2)**

- Vertical ASME rated expansion tanks
- Nitrogen-condensing ASME-rated tank
- HTF Circulation pumps
- HTF Ullage Tank (vapors)
- Ullage Tank Cooler
- Ullage Drain Tank
- HTF Flash Tank (liquids)
- HTF Waste Storage Tank
- HTF Piping Headers
- Associated Piping and Components
- Carbon Absorption Beds

## **Fuel Dispensing System**

- 2,000 gallon above ground gasoline storage tank
- Phase I and II vapor recovery system
- Associated gasoline piping and fuel dispensing equipment
- 3,000 gallon fixed roof above ground diesel storage tank
- Associated diesel piping and fuel dispensing equipment

The only fuels to be combusted on-site will be California-certified low-sulfur low-aromatic diesel fuel used by the emergency fire pump and the emergency generator engines, and pipeline-quality natural gas for the auxiliary boiler.

## **4. Overall Project Emissions**

Operation of the Project will result in emissions to the atmosphere of both criteria and toxic air pollutants from the proposed auxiliary boilers, fire pumps, emergency generator engines, and cooling towers, the HTF ullage/expansion tank equipped with nitrogen blanket and carbon absorption system, fugitive losses from the HTF system, HTF land treatment system and fuel handling (storage and dispensing). Criteria pollutant emissions will consist primarily of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), sulfur oxides (SO<sub>x</sub>), sub 10-micron particulate matter (PM<sub>10</sub>), [The PM<sub>10</sub> contains the sub 2.5-micron particulate matter particulate matter (PM<sub>2.5</sub> as a sub-component). Air toxic pollutants will consist of a combination of toxic gases and toxic particulate matter species. Tables 1 and 1A list the

pollutants that may potentially be emitted from the proposed Project.<sup>13</sup> For natural gas-fired equipment, emissions calculations are based on the Higher Heating Value (HHV) of the natural gas fuel.

**Maximum Annual Emissions**

Table 1 presents maximum annual facility operational emissions. Table 1A presents maximum hourly and annual facility hazardous air pollutant (HAP) emissions. For this project, PM<sub>2.5</sub> emissions are assumed to be equal to PM<sub>10</sub> emissions, which were calculated using a PM<sub>10</sub> emissions factor.

<i>Table 1 – GSEP - Maximum Annual Operational Emissions</i>				
(All emissions presented in tons per year)				
NOx	SOx	CO	PM <sub>10</sub> /PM <sub>2.5</sub>	VOC
1.20	0.009	0.60	3.94	7.60

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<sup>13</sup> “Application for Certification Genesis Solar Energy Project, August 2009.

Table 1A – GSEP - Maximum Annual HAP Emissions

(All emissions presented in pounds per year)

Substance		Emissions		Type *	Emission Source				
Name	CAS	lb/hr	lb/yr		Boiler	HTF	Cooling Tower	Fuel	ICE
1,3-Butadiene	106-9-90	1.89E-02	1.89E+00	HAP					ICE
Acetaldehyde	75-0-70	6.84E-02	7.09E+00	HAP	B				ICE
Acrolein	107-0-28	3.21E-03	5.60E-01	HAP	B				ICE
Arsenic	7440-3-82	6.92E-04	6.79E-02	HAP			CT		ICE
Barium	7440-3-93	4.69E-04	7.50E-05				CT		
Benzene	71-4-32	1.50E+00	6.03E+03	HAP	B	HTF		F	
Bi-phenyl	92-5-24	9.79E-01	3.95E+03	HAP		HTF			
Cadmium	7440-4-39	1.31E-04	1.31E-02	HAP					ICE
Chromium hexavalent	18540-2-99	1.74E-05	1.74E-03	HAP					ICE
PM10 / DPM	9901	0.05287	9.48000	HAP					ICE
Ethyl benzene	100-4-14	1.41E-04	2.05E-01	HAP	B			F	
Formaldehyde	50-0-00	1.5E-01	1.53E+01	HAP	B				ICE
Hexane	110-5-43	3.71E-04	3.71E-01	HAP	B				
Manganese	7439-9-65	4.12E-05	6.60E-05	HAP			CT		
Mercury	7439-9-76	2.00E-4	2.00E-2	HAP					ICE
Naphthalene	91-2-03	1.39E-5	1.39E-02	HAP	B				
Nickel	7440-0-20	3.39E-04	3.39E-02	HAP					ICE
PAH	1150	4.76E-06	4.76E-03	HAP	B				
Phenol	108-9-52	1.62E-02	6.54E+01	HAP		HTF			
Propylene	115-0-71	2.72E-02	2.72E+01		B				
Toluene	108-8-83	1.07E-01	4.27E+02	HAP	B	HTF		F	
Xylene	1330-2-07	1.11E-03	1.21E+00	HAP	B			F	

Annual Total of TACs	10,535.86	
Annual Total of HAPS	10,508.66	**
*	All of these toxic substances are California Air Toxic Contaminants (TAC) and some are Federal Hazardous Air Pollutants (HAP).	
**	About 9,700 pound of the HAP per year is fugitive emissions from components of the HTF system.	

## Maximum Daily Emissions

Table 2 presents maximum daily facility emissions calculated under worst case conditions.

<i>Table 2 – GSEP – Maximum Daily Operational Emissions</i>				
(All emissions presented in pounds per day)				
NO <sub>x</sub>	SO <sub>x</sub>	CO	PM <sub>10</sub> /PM <sub>2.5</sub>	VOC
42.10	0.27	17.19	39.91	44.06

## 5. Control Technology Evaluation/BACT Determination

Best Available Control Technology (BACT) is required for all new permit units that emits, or has the potential to emit, 25 pounds per day at any new facility that emits, or has the potential to emit, 25 tons per year or more of any non-attainment pollutant or its precursors (MDAQMD Rule 1303(A)). The proposed project site is state non-attainment for ozone and PM<sub>10</sub> and their precursors and unclassified for federal standards for ozone and PM<sub>10</sub>. Based on the proposed project's maximum emissions as calculated in §4 above and appendix A, the project triggers BACT for the proposed Heat Transfer Fluid (HTF) system (expansion tanks and ullage vent system) compounds, which have the potential to emit more than 25 pounds per day of VOC.

The applicant proposes BACT for the emergency internal combustion engines and HTF system; and BACT or presumptive MACT for all emissions units and has submitted an analysis that evaluates the control technology for these pollutants, trace organics, and trace metals.<sup>14</sup> The BACT emission rates are at least as stringent as applicable federal regulations such as the applicable National Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII).

### *Proposed Limits for each 30MMBtu/hr Natural Gas Fired Boiler*

<i>Table 3 – GSEP – Proposed Limits for Natural Gas Boilers</i>		
Pollutant	Limit	Control
NO <sub>x</sub>	9.0 ppm at 3% O <sub>2</sub>	Ultra low-NO <sub>x</sub> burner
VOC	None	PUC quality natural gas
PM	None	PUC quality natural gas
SO <sub>x</sub>	None	PUC quality natural gas
CO	50 ppm at 3% O <sub>2</sub>	Ultra low-NO <sub>x</sub> burner

<sup>14</sup> ibid

***BACT for each HTF (Expansion Tank/Ullage Vent) System***

MACT for VOC and toxic emissions from the HTF expansion tank/ullage vent system is nitrogen blanket and carbon absorption with inspections.

Pollutant	Control
VOC	1. Carbon absorption at 98% 2. Inspection and Maintenance Plan
NO <sub>x</sub> , SO <sub>x</sub> , CO, PM	Not Applicable

The applicant is currently working on the design and feasibility of a BACT/T-BACT system to control VOC emissions from the HTF expansion tank/ullage vent system to have at least 98% control efficiency for VOC and toxics compounds. The VOC control system may either be a chiller/condenser, carbon absorption or a combination of such technologies.<sup>15</sup>

***Proposed Limits for each Cooling Tower***

MACT for a vertically-oriented wet cooling tower as proposed for use by the applicant has been determined to be a high efficiency drift eliminator.

Pollutant	Control
PM	Drift rate not to exceed 0.0005%
VOC	Hydrocarbon leak detection device
NO <sub>x</sub> , SO <sub>x</sub> , CO	Not Applicable

The proposed cooling towers will have drift eliminators with vendor-guaranteed PM control efficiency of 0.0005%. The facility will be required to have a functional hydrocarbon detection device and to repair leaks in a timely manner. The proposed cooling towers meet the above requirements.

***BACT for each Internal Combustion Engine – Emergency Generator and Fire Pump (total of four engines)***

The proposed engines are compliant with the current applicable NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII) and with the applicable California State Airborne Toxic Control Measure for Stationary Compression Ignition Engines (17 CCR 93115). These diesel engines must meet the latest Tier for emergency engines at the time of purchase. Compliance with the NSPS and ATCM is determined to be BACT for the fire pump and emergency generator engines and is found to be an engine meeting the current Tier requirements. The proposed Tier II and III engines meet this requirement.

<sup>15</sup> Letter from Tetra Tech to A. DeSalvio, November 12, 2009

*Table 6 – GSEP – BACT for Emergency Internal Combustion Engines*

Proposed Engine	NO <sub>x</sub> + NMHC (g/bhp-hr)	PM (g/bhp-hr)	CO (g/bhp-hr)	SO <sub>x</sub>
315 hp Tier III	3.0	0.15	2.6	15 ppm S fuel
1341 bhp Tier II	4.8	0.15	2.6	15 ppm S fuel

## 6 PSD Class I Area Protection

The Clean Air Act (CAA) established the PSD permit program to prevent areas that currently have clean air from significant deterioration. The PSD permit program limits emissions by requiring permits for major stationary air pollution sources. The GSEP did not evaluate the visibility reduction potential of project emissions on Prevention of Significant Deterioration (PSD) Class I areas. The GSEP does not have the PTE to emit 25 tons per year or more of criteria pollutants and so are not required to complete such an evaluation. The GSEP is not a major source it is not subject to the PSD requirements Title I, Part C of the Federal Clean Air Act (42 U.S.C. §§7470-7492) which apply to major sources only and therefore is in compliance with the PSD requirements of Rule 1300.

## 7. Air Quality Impact Analysis

GSEP performed the ambient air quality standard impact analyses for CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> emissions. The MDAQMD approves of the analysis methods used in these impact analyses and the findings of these impact analyses.

### *Findings*

The impact analysis calculated a maximum incremental increase for each pollutant for each applicable averaging period, as shown in Table 7 below. When added to the maximum recent background concentration, the MSP did not exceed the most stringent (or lowest) standard for any pollutant except PM<sub>10</sub>, which is already in excess of the State standard without the project.

*Table 7 – GSEP – Maximum Ambient Air Quality Impacts*

	<b>Project Impact</b>	<b>Background</b>	<b>Total Impact</b>	<b>Federal Standard</b>	<b>State Standard</b>
<b>Pollutant</b>	<i>All values in <math>\mu\text{g}/\text{m}^3</math></i>				
NO <sub>2</sub> (1 hour)	81.5	96.5	178.0	189	339
NO <sub>2</sub> (annual)	0.051	42	42.1	100	57
PM <sub>10</sub> (24 hour)	1.31	154	155.3	150	50
PM <sub>10</sub> (annual)	0.102	38.4	38.5	n/a	20
PM <sub>2.5</sub> (24 hour)	1.31	28.0	29.3	35	n/a
PM <sub>2.5</sub> (annual)	0.102	10.4	10.5	15	12
CO (1 hour)	75.5	4025	4101	40,000	23,000
CO (8 hour)	7.8	1789	1797	10,000	10,000
SO <sub>2</sub> (1 hour)	0.25	94	94.3	n/a	655
SO <sub>2</sub> (3 hour)	0.100	31.2	31.3	1300	n/a
SO <sub>2</sub> (24 hour)	0.007	13.1	13.11	365	105
SO <sub>2</sub> (annual)	0.0001	2.7	2.7	80	n/a

### ***Inputs and Methods***

Maximum emissions for two power blocks under normal operating conditions were modeled. Emissions from two of the power blocks are presented above in Table 7. A five-year (2002 through 2006) sequential hourly meteorological data set from the meteorological tower at the Blythe Airport was used. Mixing heights were determined from Tucson, Arizona data. For determining NO<sub>2</sub> impacts using a NO<sub>x</sub> background, the hourly Ozone Limiting Method (OLM) for conversion of NO<sub>x</sub> to NO<sub>2</sub> was used. The latest versions of AERMOD preprocessors were used to determine surface characteristics (AERSURFACE version 08009), process meteorological data (AERMET version 06341) and determine receptor slope factors (AERMAP version 09040).

The AERMOD dispersion model (version 07026) was used to estimate ambient concentrations resulting from GSEP – emissions. The dispersion modeling was performed according to USEPA requirements.

## **8. Health Risk Assessment and Toxics New Source Review**

GSEP – performed a Health Risk Assessment (HRA) for carcinogenic, non-carcinogenic chronic, and non-carcinogenic acute toxic air contaminants. The MDAQMD approves of the HRA methods and findings.

### ***Findings***<sup>16</sup>

The HRA calculated a peak 70-year cancer risk of 3.27 per million. The calculated peak 70-year residential cancer risk is less than 1.0 per million (for all receptors). The maximum non-cancer

<sup>16</sup> HRA values in the application dated October 6, 2009 were increase by 100 fold to obtain worse case risk based upon new emission calculation in the TETRA TECH letter dated February 12, 2010.

chronic and acute hazard indices are both less than the significance level of 1.0 ( $1.19 \times 10^{-3}$  and  $6.68 \times 10^{-3}$ , respectively). As these risks make the project a “low priority” project, and as the project emits less than 10 tons per year of every single HAP and 25 tons per year of any combination of HAPs, no further toxics new source review is required for this project (Rule 1320(E)(2)(b)). Please refer to Table 1A above for a summary of project HAP emissions.

**Inputs and Methods**

GSEP will emit toxic air contaminants as products of natural gas combustion, diesel fuel combustion, venting of the expansion and ullage tank, equipment wear HTF land treatment, fuel storage and dispensing and cooling tower emissions. Combustion emissions were estimated using emission factors from OEHHA and USEPA, and a speciation profile for polycyclic aromatic hydrocarbons (PAH) was derived from the California Air Toxics Emission Factors (CATEF) database. Venting of VOC from the HTF ullage tank is controlled via nitrogen blanket carbon absorption and Inspections and Maintenance Plan with 98% control efficiency. Cooling tower emissions were estimated using USEPA emission factors for evaporative emissions, engineering calculation for drift droplets, and water quality estimations for water supplied from onsite groundwater wells.

The AERMOD (version 07026) dispersion model (as incorporated into HARP) was used to estimate ambient concentrations of toxic air pollutants. The Hot Spots and Reporting Program (HARP, Version 1.4a) risk assessment model was used to estimate health risks due to exposure to emissions. The AERMOD meteorological dataset was used for the risk analysis.

**9. Offset Requirements**

MDAQMD Regulation XIII – *New Source Review* requires offsets for non-attainment pollutants and their precursors emitted by large, new sources. The GSEP does not have the PTE 25 tons or more per year of any criteria pollutants. Offsets are not required for the GSEP.

<i>Table 8 - Comparison of GSEP – Emissions with Offset Thresholds</i>					
All emissions in tons per year					
	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>	PM <sub>10</sub> /PM <sub>2.5</sub>
Maximum Annual Potential to Emit	1.15	7.57	17.2	0.01	3.94
Offset Threshold	25	25	100	25	15

**10. Applicable Regulations and Compliance Analysis**

Selected MDAQMD Rules and Regulations will apply to the proposed project:

**Regulation II – Permits**

Rule 212 – *Standards for Approving Permits* establishes baseline criteria for approving permits by the MDAQMD for certain projects. In accordance with these criteria, the proposed project accomplishes all required notices and emission limits through the PDOC and complying with stringent emission limitations set forth on permits.

#### ***Regulation IV - Prohibitions***

Rule 401 – *Visible Emissions* limits visible emissions opacity to less than 20 percent (or Ringelmann No. 1). During start up, visible emissions may exceed 20 percent opacity. However, emissions of this opacity are not expected to last three minutes or longer. In normal operating mode, visible emissions are not expected to exceed 20 percent opacity.

Rule 402 – *Nuisance* prohibits facility emissions that cause a public nuisance. The proposed turbine power train exhaust is not expected to generate a public nuisance due to the sole use of pipeline-quality natural gas as a fuel. In addition, due to the location of the proposed project, no nuisance complaints are expected.

Rule 403 – *Fugitive Dust* specifies requirements for controlling fugitive dust. The proposed project does not include any significant sources of fugitive dust so the proposed project is not expected to violate Rule 403.

Rule 404 – *Particulate Matter – Concentration* specifies standards of emissions for particulate matter concentrations. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 404.

Rule 405 – *Solid Particulate Matter - Weight* limits particulate matter emissions from fuel combustion on a mass per unit combusted basis. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 405.

Rule 408 – *Circumvention* prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408.

Rule 409 – *Combustion Contaminants* limits total particulate emissions on a density basis. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 409.

Rule 430 – *Breakdown Provisions* requires the reporting of breakdowns and excess emissions. The proposed project will be required to comply with Rule 430 by permit condition.

Rule 431 – *Sulfur Content in Fuels* limits sulfur content in gaseous, liquid and solid fuels. The sole use of pipeline-quality natural gas as a fuel will keep the proposed project in compliance with Rule 431.

Rule 476 - *Steam Generating Equipment* limits NO<sub>x</sub> and particulate matter from steam boilers, including the auxiliary boiler, and specifies monitoring and recordkeeping for such equipment. The proposed project will have specific permit conditions requiring compliance with these provisions.

### ***Regulation IX – Standards of Performance for New Stationary Sources***

Regulation IX includes by reference the NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII). Permit conditions for the proposed project will establish limits which are in compliance with the compression ignition engine NSPS referenced in Regulation IX.

### ***Regulation XI - Source Specific Standards***

Rule 1113 - *Architectural Coatings* limits VOC content of applied architectural coatings. The proposed project will be required to use compliant coatings by permit condition.

Rule 1158 – *Electric Power Generating Facilities* This rule is only applicable to units located within the FONA. Since the GSEP is located outside of the FONA, this rule does not apply.

Rule 1157 – *Boilers and Process Heaters* This rule is only applicable to units located within the FONA. Since the GSEP is located outside of the FONA, this rule does not apply.

### ***Regulation XIII – New Source Review***

Rule 1300 – *General* ensures that Prevention of Significant Deterioration (PSD) requirements apply to all projects. The proposed project does not have the PTE to emit 25 tons per year or more of criteria pollutants and therefore is not a major source of emissions. As this facility is not a major source it is not subject to the PSD requirements Title I, Part C of the Federal Clean Air Act (42 U.S.C. §§7470-7492 which apply to major sources only and therefore is in compliance with the PSD requirements of Rule 1300.

Rule 1302 – *Procedure* requires certification of compliance with the Federal Clean Air Act, applicable implementation plans, and all applicable MDAQMD rules and regulations. The ATC application package for the proposed project includes sufficient documentation to comply with Rule 1302(D)(5)(b)(iii). Permit conditions for the proposed project will require compliance with Rule 1302(D)(5)(b)(iv).

Rule 1303 – *Requirements* requires BACT major new sources and permit units which have the PTE to emit more than 25 pounds per day of criteria pollutants. As this facility is not a major source BACT is only required for the Heat Transfer System which have the PTE to emit more than 25 pounds per day of VOC.

Rule 1305 – *Emissions Offsets* this facility does not have the PTE 25 tons per year or more of pollutants and therefore offsets are.

Rule 1306 – *Electric Energy Generating Facilities* places additional administrative requirements on projects involving approval by the California Energy Commission (CEC). The proposed project will not receive an ATC without CEC's approval of their Application for Certification, ensuring compliance with Rule 1306.

### ***Regulation XII – Federal Operating Permits***

Regulation XII contains requirements for sources which must have a federal operating permit and an acid rain permit. The proposed project will not be required to submit applications for a federal operating permit because this facility is not a major source nor is a federal operating permit required under any applicable federal regulation.

### ***Maximum Achievable Control Technology Standards***

Health & Safety Code §39658(b)(1) states that when USEPA adopts a standard for a toxic air contaminant pursuant to §112 of the Federal Clean Air Act (42 USC §7412), such standard becomes the Airborne Toxic Control Measure (ATCM) for the toxic air contaminant. Once an ATCM has been adopted it becomes enforceable by the MDAQMD 120 days after adoption or implementation (Health & Safety Code §39666(d)). USEPA has not to date adopted a Maximum Achievable Control Technology (MACT) standard that is applicable to the proposed project. Should USEPA adopt an applicable MACT standard in the future, the MDAQMD will be required to enforce said MACT as an ATCM on the proposed project. MACT is also required for each major source of toxic air contaminants. GSEP will not emit more than ten tons per year of any individual toxic air contaminant, and will not collectively emit more than 25 tons per year of all toxic air contaminants, so MACT is not required.

## **11. Conclusion**

The MDAQMD has reviewed the proposed project's Application for New Source Review. The MDAQMD has determined that the proposed project is not a Major source of regulated air pollutants as defined by District Rule 1301, and after application of the permit conditions (including BACT requirements) given below, will comply with all applicable MDAQMD Rules and Regulations

## **12. Permit Conditions**

The following permit conditions will be placed on the Authorities to Construct (ATC) for the project. Separate permits will be issued for each auxiliary boiler/HFT heater, HTF ullage/expansion tank with nitrogen blanket and carbon adsorption system, cooling tower, fire pump internal combustion engine, emergency internal combustion engine, and fuel handling system. The electronic version of this document contains a set of conditions that are essentially identical for each of multiple pieces of equipment, differing only in MDAQMD permit reference numbers. The signed and printed ATCs will have printed permits (with descriptions and conditions) in place of condition language listings.

### ***Auxiliary Boiler Authority to Construct Conditions***

*[Two - 30 MMBtu/hr Natural Gas Fired Auxiliary Boiler, Application Number: 00010788 and 0010789]*

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. Emissions from this equipment shall not exceed the following hourly emission limits at any firing rate, verified by fuel use and annual compliance tests:
  - a. NO<sub>x</sub> as NO<sub>2</sub>:
    1. 0.330 lb/hr operating at 100% load (based on 9.0 ppmvd corrected to 3% O<sub>2</sub> and averaged over one hour)
  - b. CO:
    1. 0.563 lb/hr operating at 100% load (based on 50 ppmvd corrected to 3% O<sub>2</sub> and averaged over one hour)
  - c. VOC as CH<sub>4</sub>:
    1. 0.088 lb/hr operating at 100% load
  - d. SO<sub>x</sub> as SO<sub>2</sub>:
    1. 0.008 lb/hr operating at 100% load
  - e. PM<sub>10</sub>:
    1. 0.150 lb/hr operating at 100% load
4. The o/o shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:
  - a. Total operation time (hour/day, hours/month and cumulative hours/rolling twelve months);
  - b. Fuel use (daily, monthly and cumulative hours/rolling twelve months);
  - c. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO<sub>x</sub>, CO, PM<sub>10</sub>, VOC and SO<sub>x</sub> (including calculation protocol); and,
  - d. Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.
5. This equipment shall not be operated for more than 1,000 hours per rolling twelve month period and more than 14 hours per calendar day.
6. The o/o shall perform initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up:
  - a. NO<sub>x</sub> as NO<sub>2</sub> in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
  - b. VOC as CH<sub>4</sub> in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).
  - c. SO<sub>x</sub> as SO<sub>2</sub> in ppmvd at 3% oxygen and lb/hr.
  - d. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).
  - e. PM<sub>10</sub> in mg/m<sup>3</sup> at 3% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).

- f. Flue gas flow rate in dscf per minute.
  - g. Opacity (measured per USEPA reference Method 9).
7. The o/o shall perform annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:
- a. NO<sub>x</sub> as NO<sub>2</sub> in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
  - b. VOC as CH<sub>4</sub> in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).
  - c. SO<sub>x</sub> as SO<sub>2</sub> in ppmvd at 3% oxygen and lb/hr.
  - d. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).
  - e. PM<sub>10</sub> in mg/m<sup>3</sup> at 3% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
  - f. Flue gas flow rate in dscf per minute.
  - g. Opacity (measured per USEPA reference Method 9).

***(Ullage Vent System) Authority to Construct Conditions***

*[Two – HTF ullage expansion tanks, Application Number: 00010842 and 00010843]*

- 1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
- 2. This system shall store only HTF, specifically the condensable fraction of the vapors vented from the ullage system.
- 3. This system shall be operated at all times with the carbon adsorption system as follows:
  - a. This carbon adsorption system shall provide 98% control efficiency of VOC emissions vented from the HTF ullage system under this District Permit.
  - b. The o/o shall prepare and submit a monitoring and change-out plan for the carbon adsorptions system which ensures that the system is operating at optimal control efficiency at all times for District approval prior to start up.
  - c. This equipment shall be properly maintained and kept in good operating condition at all times.
  - d. This equipment must be in use and operating properly at all times the HTF ullage system is venting.
  - e. Total emissions of VOC to the atmosphere shall not exceed 1.5 lbs/day and 540 lbs/year calculated based on the most recent monitoring results.
  - f. Total emissions of benzene to the atmosphere shall not exceed 0.6 lbs/day and 220 lbs/year calculated based on the most recent monitoring results.

- g. During operation, o /o shall monitor VOC measured at outlet from the carbon beds.
    - Sampling is to be performed on a weekly basis. Samples shall be analyzed pursuant to USEPA Test Method 25 – Gaseous Non-methane Organic Emissions. Initial test shall be submitted to the District within 180 days after startup.
  - g. FID shall be considered invalid if not calibrated on the day of required use.
  - h. The o/o shall maintain current and on-site for the duration of the project a log of the weekly test results, which shall be provided to District personnel upon request, with date and time the monitoring was conducted.
  - i. Prior to January 31 of each new year, the o/o of this unit shall submit to the District a summary report of all VOC emissions (as hexane).
4. Vent release shall be monitored in accordance with a District approved Inspection, Monitoring and Maintenance plan.
  5. The owner/operator shall establish an inspection and maintenance program to determine, repair, and log leaks in HTF piping network and expansion tanks. Inspection and maintenance program and documentation shall be available to District staff upon request.
    - a. All pumps, compressors and pressure relief devices (pressure relief valves or rupture disks) shall be electronically, audio, or visually inspected once every operating day.
    - b. All accessible valves, fittings, pressure relief devices (PRDs), hatches, pumps, compressors, etc. shall be inspected quarterly using a leak detection device such as a Foxboro OVA 108 calibrated for methane.
    - c. Inspection frequency for accessible components, except pumps, compressors and pressure relief valves, may be changed from quarterly to annual when two percent or less of the components within a component type are found to leak during an inspection for five consecutive quarters.
    - d. Inspection frequency for accessible components, except pumps, compressors and pressure relief valves, shall be increased to quarterly when more than two percent of the components within a component type are found to leak during any inspection or report.
    - e. If any evidence of a potential leak is found the indication of the potential leak shall be eliminated within 7 calendar days of detection.
    - f. VOC leaks greater than 10,000-ppmv shall be repaired within 24-hours of detection.
    - g. After a repair, the component shall be re-inspected for leaks as soon as practicable, but no later than 30 days after the date on which the component is repaired and placed in service.
    - h. O/o shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, date of leak detection, emission level (ppmv), method of leak detection, date of and repair, date and emission level of reinspection after leak is repaired.

- i. O/o shall maintain records of the total number of components inspected, and the total number and percentage of leaking components found, by component types made.
    - j. O/o shall maintain record of the amount of HTF replaced on a monthly basis for a period of 5 years.
  6. The o/o shall submit to the District a compliance test protocol within sixty (60) days of start-up and shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the operator shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.
  7. The o/o shall perform the following initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up. The following compliance tests are required:
    - a. VOC as CH<sub>4</sub> in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).
    - b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).
  8. The o/o shall perform the following annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:
    - a. VOC as CH<sub>4</sub> in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).
    - b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).
- Additionally, records of all compliance tests shall be maintained on site for a period of five (5) years and presented to District personnel upon request.
9. Emissions from this equipment may not exceed the following emission limits, based on a calendar day summary:
    - a. VOC as CH<sub>4</sub> – 1.5 lb/day, verified by compliance test.
    - b. Benzene – 0.6 lb/day, verified by compliance test.
  10. If current non-criteria substances become regulated as toxic or hazardous substances and are used in this equipment, the owner/operator (o/o) shall submit to the District a plan demonstrating how compliance will be achieved and maintained with such regulations.

### ***Cooling Tower Authority to Construct Conditions***

*[Two Cooling Towers, Application Number: 00010787 and 00010841]*

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. The drift rate shall not exceed 0.0005 percent with a maximum circulation rate of 94,623 gallons per minute. The maximum hourly PM<sub>10</sub> emission rate shall not exceed 2.36 pounds per hour, as calculated per the written District-approved protocol.
4. The operator shall perform weekly specific conductivity tests of the blow-down water to indirectly measure total dissolved solids (TDS). Quarterly tests of the blow-down water will be done to confirm the relationship between conductance and TDS. The TDS shall not exceed 5,000 ppmv on a calendar monthly basis.
5. The operator shall conduct all required cooling tower water tests in accordance with a District-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the operator shall provide a written test and emissions calculation protocol for District review and approval.
6. This equipment shall not be operated for more than 3,200 hours per rolling twelve month period and more than 15 hours per calendar day.
7. The o/o shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:
  - a. Total operation time (hours per day, hours per month, and hours per rolling twelve month period); and
  - b. The date and result of each blow-down water test in TDS ppm, and the resulting mass emission rate
8. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept on-site and available to District personnel on request.

### ***Emergency Generator Authority to Construct Conditions***

*[Two – 1,341 hp emergency IC engine each driving a generator, Application Number: 00010790 and 00010791]*

1. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which

produce the minimum emissions of contaminants. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.

2. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements.

3. A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. (Title 17 CCR §93115.10(e)(1)).

4. This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50 hour per year limit.

5. The owner/operator (o/o) shall maintain a operations log for this unit current and on-site, either at the engine location or at a on-site location, for a minimum of two (2) years, and for another year where it can be made available to the District staff within 5 working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:

- a. Date of each use and duration of each use (in hours);
- b. Reason for use (testing & maintenance, emergency, required emission testing);
- c. Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).

6. This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program (DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier.

7. This engine may operate in response to notification of impending rotating outage if the area utility has ordered rotating outages in the area where the engine is located or expects to order such outages at a particular time, the engine is located in the area subject to the rotating outage, the engine is operated no more than 30 minutes prior to the forecasted outage, and the engine is shut down immediately after the utility advises that the outage is no longer imminent or in effect.

8. This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115). In the event of conflict between these conditions and the ATCM, the more stringent shall govern.

9. This unit is subject to the requirements of the Federal National Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart III).

***Emergency Fire Suppression Water Pump Authority to Construct Conditions***

*[Two - 315 hp emergency IC engine each driving a fire suppression water pump, Application Number: 00010792 and 00010793]*

1. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.

2. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements.

3. A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. (Title 17 CCR §93115.10(e)(1))

4. This unit shall be limited to use for emergency power, defined as in response to a fire or due to low fire water pressure. In addition, this unit shall be operated no more than 50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50 hour per year limit. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. {Title 17 CCR 93115.3(n)}

5. The owner/operator (o/o) shall maintain a operations log for this unit current and on-site, either at the engine location or at a on-site location, for a minimum of two (2) years, and for another year where it can be made available to the District staff within 5 working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:

- a. Date of each use and duration of each use (in hours);
- b. Reason for use (testing & maintenance, emergency, required emission testing);
- c. Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).

6. This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115). In the event of conflict between these conditions and the ATCM, the requirements of the ATCM shall govern.

7. This unit is subject to the requirements of the Federal National Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart III).

***Non-retail Gasoline Dispensing Facility Authority to Construct Conditions***

*[One – above ground gasoline storage tank and fuel receiving and dispensing equipment  
Application Number: 0001246]*

1. The toll-free telephone number that must be posted is 1-800-635-4617.
2. The owner/operator (o/o) shall maintain a log of all inspections, repairs, and maintenance on equipment subject to Rule 461. Such logs or records shall be maintained at the facility for at least two (2) years and available to the District upon request. Records of Maintenance, Tests, Inspections, and Test Failures shall be maintained and available to District personal upon request; record form shall be similar to the Maintenance Record form indicated in EO VR-401-A, Figure 2N
3. Any modifications or changes to the piping or control fitting of the vapor recovery system require prior approval from the District.
4. Pursuant to EO VR-401-A, vapor vent pipes are to be equipped with Husky 5885 pressure relief valves or as otherwise allowed by EO.
5. The o/o shall perform the following tests within 60 days of construction completion and annually thereafter in accord with the following test procedures:
  - a. Determination of Static Pressure Performance of Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks shall be conducted per EO VR-401-A Exhibit 4.
  - b. Phase I Adapters, Emergency Vents, Spill Container Drain Valve, Dedicated gauging port with drop tube and tank components, all connections, and fittings shall NOT have any detectable leaks; test methods shall be per EO VR-401-A Table 2-1, and
  - c. Liquid Removal Test (if applicable) per TP-201.6, and

Summary of Test Data shall be documented on a Form similar to EO VR-401-A Form 1

The District shall be notified a minimum of 10 days prior to performing the required tests with the final results submitted to the District within 30 days of completion of the tests.

The District shall receive passing test reports no later than six (6) weeks prior to the expiration date of this permit.

6. Pursuant to California Health and Safety Code sections 39600, 39601 and 41954, this aboveground tank shall be installed and maintained in accordance with Executive Order (EO) VR-401-A for EVR Phase I, and Standing Loss requirements:  
<http://www.arb.ca.gov/vapor/eos/eo-vr401/eo-vr401a/eo-401a.pdf>.

Additionally, Phase II Vapor Recovery System shall be installed and maintained per G-70-116-F with the exception that hanging hardware shall be EVR Balance Phase II type hanging hardware (VST or other CARB Approved EVR Phase II Hardware).

7. Pursuant to EO VR-401-A: Maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed by OPW Certified Technicians.

8. Pursuant to EO VR-401-A, Maintenance Intervals for OPW; Tank Gauge Components; Dust Caps Emergency Vents; Phase I Product and Vapor Adapters, and Spill Container Drain Valve, shall be conducted by an OPW trained technician annually.

9. The annual throughput of gasoline shall not exceed 600,000 gallons per year. Throughput Records shall be kept on site and available to District personnel upon request. Before this annual throughput can be increased the facility may be required to submit to the District a site specific Health Risk Assessment in accord with a District approved plan. In addition public notice and/or comment period may be required.

10. The o/o shall; install, maintain, and operate EVR Phase I in compliance with CARB Executive Order VR-401-A, and Phase II vapor recovery in accordance with G-70-116-F. In the event of conflict between these permit conditions and/or the referenced EO's the more stringent requirements shall govern.

**Appendix A – GSEP- Genesis Solar Energy Project Emissions Calculations**

# Genesis Solar Energy Project Boilers

Heat Input	30	MMBtu/hr
Heating Value	1020	MMBtu/MMscf
Fuel input	0.029	MMscf/hr
Daily	14	Hours
Annual	1000	Hours

Substance	EmFac	Per Application				By District					
		Emissions				Emissions					
		lb / MMscf	Single Boiler			Both Boilers					
lb/hr	lb/day		tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy		
NOx	11.23	6.61E-01	9.25E+00	3.30E-01	3.30E-01	4.62E+00	1.65E-01	6.61E-01	9.25E+00	3.30E-01	
CO	19.15	1.13E+00	1.58E+01	5.63E-01	5.63E-01	7.89E+00	2.82E-01	1.13E+00	1.58E+01	5.63E-01	
VOC	2.99	1.76E-01	2.46E+00	8.80E-02	8.79E-02	1.23E+00	4.40E-02	1.76E-01	2.46E+00	8.79E-02	
SOx	0.272	1.60E-02	2.24E-01	8.00E-03	8.00E-03	1.12E-01	4.00E-03	1.60E-02	2.24E-01	8.00E-03	
PM10 / PM2.5	5.09	2.99E-01	4.19E+00	1.50E-01	1.50E-01	2.10E+00	7.49E-02	2.99E-01	4.19E+00	1.50E-01	
	lb / MMscf			lb/yr			lb/yr			lb/yr	
Acetaldehyde	4.61E-03	2.71E-04	3.80E-03	3.99E-03	1.36E-04	1.90E-03	1.36E-01	2.71E-04	3.80E-03	2.71E-01	
Acrolein	4.51E-03	2.65E-04	3.71E-03	3.90E-03	1.33E-04	1.86E-03	1.33E-01	2.65E-04	3.71E-03	2.65E-01	
Benzene	2.43E-03	1.43E-04	2.00E-03	2.10E-03	7.15E-05	1.00E-03	7.15E-02	1.43E-04	2.00E-03	1.43E-01	
Ethyl benzene	2.25E-03	1.32E-04	1.85E-03	1.95E-03	6.62E-05	9.26E-04	6.62E-02	1.32E-04	1.85E-03	1.32E-01	
Formaldehyde	4.75E-03	2.79E-04	3.91E-03	4.11E-03	1.40E-04	1.96E-03	1.40E-01	2.79E-04	3.91E-03	2.79E-01	
Hexane	6.30E-03	3.71E-04	5.19E-03	5.45E-03	1.85E-04	2.59E-03	1.85E-01	3.71E-04	5.19E-03	3.71E-01	
Naphthalene	2.37E-04	1.39E-05	1.95E-04	2.05E-04	6.97E-06	9.76E-05	6.97E-03	1.39E-05	1.95E-04	1.39E-02	
PAH	8.10E-05	4.76E-06	6.67E-05	7.01E-05	2.38E-06	3.34E-05	2.38E-03	4.76E-06	6.67E-05	4.76E-03	
Propylene	4.63E-01	2.72E-02	3.81E-01	4.01E-01	1.36E-02	1.91E-01	1.36E+01	2.72E-02	3.81E-01	2.72E+01	
Toluene	3.23E-02	1.90E-03	2.66E-02	2.79E-02	9.50E-04	1.33E-02	9.50E-01	1.90E-03	2.66E-02	1.90E+00	
Xylene	1.87E-02	1.10E-03	1.54E-02	1.62E-02	5.50E-04	7.70E-03	5.50E-01	1.10E-03	1.54E-02	1.10E+00	
	lb / MMBTU										
CO2	116.95	7.02E+03	9.82E+04	7.02E+06	3.51E+03	4.91E+04	3.51E+06	7.02E+03	9.82E+04	7.02E+06	
Methane	0.013	7.80E-01	1.09E+01	7.80E+02	3.90E-01	5.46E+00	3.90E+02	7.80E-01	1.09E+01	7.80E+02	
N2O	0.0002	1.32E-02	1.85E-01	1.32E+01	6.00E-03	8.40E-02	6.00E+00	1.20E-02	1.68E-01	1.20E+01	

# Genesis Solar Energy Project

## Cooling Tower

Hours per day =	15
Hours per year =	3200

Substance	EmFac	Per Application			By District					
		Emissions			Emissions					
					Single Cooling Tower			Both Cooling Tower		
	ppm	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy
PM10 & PM2.5	5000	2.36	35.47	3.78	1.18	17.77	1.90	2.37	35.53	3.79
				lb/yr						lb/yr
Manganese	0.029	4.12E-05	6.17E-04	6.58E-05	2.06E-05	3.09E-04	3.30E-05	4.12E-05	6.18E-04	6.60E-05
Magnesium	14	1.99E-02	2.98E-01	3.18E-02	9.95E-03	1.49E-01	1.59E-02	1.99E-02	2.98E-01	3.18E-02
Arsenic	0.0092	1.31E-05	1.96E-04	2.08E-05	6.54E-06	9.81E-05	1.05E-05	1.31E-05	1.96E-04	2.09E-05
Barium	0.033	4.68E-05	7.02E-04	7.49E-05	2.35E-05	3.52E-04	3.75E-05	4.69E-05	7.04E-04	7.50E-05
Molybdenum	0.24	3.41E-04	5.11E-03	5.45E-04	1.71E-04	2.56E-03	2.73E-04	3.41E-04	5.12E-03	5.46E-04

ppm =	1 mg/l
milligrams =	2.20E-06 pounds
Water flow rate =	94,623 gpm
draft rate =	0.0005 %
Hour =	60 min
Gallon =	3.785 liters
# of Towers =	2
Conversation Factor =	0.000474

# Genesis Solar Energy Project

## Emergency Generator

Rating =	1341	bhp
Daily =	1	hour
Yearly =	50	hours
Fuel Rate	72	gal/hr

Limited to 50 hr/yr by the ATCM Title 13 CCR 93115

Substance	EmFac	Per Application				By District					
		Emissions				Emissions					
		g/bhp-hr	lb/hr	lb/day	lb/yr	Single Engine			Both Engines		
				lb/hr	lb/day	tpy	lb/hr	lb/day	tpy		
NOx	4.93	29.12	29.12	7.57E-01	14.58	14.58	0.364	14.58	29.15	7.29E-01	
CO	0.13	0.77	0.77	2.00E-02	0.38	0.38	0.010	0.38	0.77	1.92E-02	
VOC	0.1	0.59	0.59	1.54E-02	0.30	0.30	0.007	0.30	0.59	1.48E-02	
PM10 / DPM	0.018	0.11	0.11	2.77E-03	0.05	0.05	0.001	0.05	0.11	2.66E-03	
SOx	0.006	0.03	0.03	1.50E-05	0.02	0.02	0.000	0.02	0.04	8.87E-04	
	lb/1000 gals						lbs/yr			lbs/yr	
Formaldehyde	1.73E+00				1.24E-01	1.24E-01	6.21E+00	1.24E-01	2.49E-01	1.24E+01	
Acetaldehyde	7.83E-01				5.64E-02	5.64E-02	2.82E+00	5.64E-02	1.13E-01	5.64E+00	
1,3-Butadiene	2.17E-01				1.57E-02	1.57E-02	7.83E-01	1.57E-02	3.13E-02	1.57E+00	
Acrolein	3.39E-02				2.44E-03	2.44E-03	1.22E-01	2.44E-03	4.88E-03	2.44E-01	
Mercury	2.30E-03				1.66E-04	1.66E-04	8.28E-03	1.66E-04	3.31E-04	1.66E-02	
Nickel	3.90E-03				2.81E-04	2.81E-04	1.40E-02	2.81E-04	5.62E-04	2.81E-02	
Arsenic	7.80E-03				5.62E-04	5.62E-04	2.81E-02	5.62E-04	1.12E-03	5.62E-02	
Cadmium	1.50E-03				1.08E-04	1.08E-04	5.40E-03	1.08E-04	2.16E-04	1.08E-02	
Chromium hexavalent	2.00E-04				1.44E-05	1.44E-05	7.20E-04	1.44E-05	2.88E-05	1.44E-03	
	Lbs / gal										
CO2	22.38	3223	3223	167581	1611.36	1611.36	40.284	3222.72	3222.72	8.06E+01	
Methane	0.0003	0.04	0.04	2.25	0.02	0.02	0.001	0.04	0.04	1.08E-03	
N2O	0.0001	0.01	0.01	0.75	0.01	0.01	0.000	0.01	0.01	3.60E-04	

# Genesis Solar Energy Project

## Emergency Fire Pump

Rating =	315	bhp
Daily =	1	hour
Yearly =	50	hours
Fuel Rate	15	gal/hr

Limited to 50 hr/yr by the ATCM Title 13 CCR 93115

Substance	EmFac									
	g/bhp-hr									
NOx	2.69	3.73	3.73	9.71E-02	1.87	1.87	4.67E-02	1.87	3.74	9.34E-02
CO	0.45	0.62	0.62	1.62E-02	0.31	0.31	7.81E-03	0.31	0.63	1.56E-02
VOC	0.06	0.08	0.08	2.17E-03	0.04	0.04	1.04E-03	0.04	0.08	2.08E-03
PM10 / DPM	0.055	0.08	0.08	1.99E-03	0.04	0.04	9.55E-04	0.04	0.08	1.91E-03
SOx	0.006	0.01	0.01	1.60E-04	0.00	0.00	1.04E-04	0.00	0.01	2.08E-04
	lb/1000 gals									
	lbs/yr									
Formaldehyde	1.73E+00				2.59E-02	2.59E-02	1.29E+00	2.59E-02	5.18E-02	2.59E+00
Acetaldehyde	7.83E-01				1.17E-02	1.17E-02	5.87E-01	1.17E-02	2.35E-02	1.17E+00
1,3-Butadiene	2.17E-01				3.26E-03	3.26E-03	1.63E-01	3.26E-03	6.52E-03	3.26E-01
Acrolein	3.39E-02				5.09E-04	5.09E-04	2.54E-02	5.09E-04	1.02E-03	5.09E-02
Mercury	2.30E-03				3.45E-05	3.45E-05	1.73E-03	3.45E-05	6.90E-05	3.45E-03
Nickel	3.90E-03				5.85E-05	5.85E-05	2.93E-03	5.85E-05	1.17E-04	5.85E-03
Arsenic	7.80E-03				1.17E-04	1.17E-04	5.85E-03	1.17E-04	2.34E-04	1.17E-02
Cadmium	1.50E-03				2.25E-05	2.25E-05	1.13E-03	2.25E-05	4.50E-05	2.25E-03
Chromium hexavalent	2.00E-04				3.00E-06	3.00E-06	1.50E-04	3.00E-06	6.00E-06	3.00E-04
	Lbs / gal									
CO2	22.38	671	671	37913	335.70	335.70	8.39E+00	671.40	671.40	1.68E+01
Methane	0.0003	0.009	0.009	0.47	0.00	0.00	1.13E-04	0.01	0.01	2.25E-04
N2O	0.0001	0.003	0.003	0.16	0.00	0.00	3.75E-05	0.00	0.00	7.50E-05

Emission Factor for SO2 added by MDAQMD

# Genesis Solar Energy Project

## HTF Ulage Venting / Expansion System / Land Treatment

Losses	lbs/hr/system	hrs/dy	day/yr
Ulage Venting	0.169	8.754	365
Component Fugitives	1.675	11.272	365
Waste Load-out	0.001	1.000	12
Land Treatment	0.007	24.000	365

### Ulage Venting

Substance	EmFac	Per Application			By District					
		Emissions			Emissions					
		lb/hr/facility	lb/hr	lb/day	tpy	Single Facility			Both Facilities	
lb/hr	lb/day					tpy	lb/hr	lb/day	tpy	
VOC	0.169	0.337	2.950	0.540	0.169	1.475	0.269	0.337	2.950	0.538
	% of VOC			lbs/yr						lbs/yr
Benzene	40.60	0.137	1.198	438.480	0.068	0.599	218.588	0.137	1.198	437.175
Phenol	0.44	0.001	0.013	4.752	0.001	0.006	2.369	0.001	0.013	4.738
Toluene	2.86	0.010	0.084	30.888	0.005	0.042	15.398	0.010	0.084	30.796
BiPhenyl	26.50	0.089	0.003	286.200	0.045	0.391	142.674	0.089	0.782	285.348

### Component Fugitives

Substance	EmFac	Per Application			By District					
		Emissions			Emissions					
		lb/hr/facility	lb/hr	lb/day	tpy	Single Facility			Both Facilities	
lb/hr	lb/day					tpy	lb/hr	lb/day	tpy	
VOC	1.675	3.350	37.760	6.890	1.675	18.881	3.446	3.350	37.761	6.891
	% of VOC			lbs/yr						lbs/yr
Benzene	40.60	1.360	15.331	5594.680	0.680	7.666	2797.916	1.360	15.331	5595.832
Phenol	0.44	0.015	0.166	60.632	0.007	0.083	30.322	0.015	0.166	60.644
Toluene	2.86	0.096	1.080	394.108	0.048	0.540	197.095	0.096	1.080	394.189
BiPhenyl	26.50	0.888	10.006	3651.700	0.444	5.003	1826.226	0.888	10.007	3652.452

# Genesis Solar Energy Project

## Waste Load-out

Substance	EmFac	Per Application Emissions			By District Emissions					
					Single Facility			Facilities		
		lb/hr/facility	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day
VOC	0.001	0.0013	0.0013	7.800E-06	0.0013	0.0013	7.800E-06	0.0013	0.0013	7.800E-06
	% of VOC			lbs/yr						lbs/yr
Benzene	40.60	5.278E-04	5.278E-04	6.334E-03	5.278E-04	5.278E-04	6.334E-03	5.278E-04	5.278E-04	6.334E-03
Phenol	0.44	5.720E-06	5.720E-06	6.864E-05	5.720E-06	5.720E-06	6.864E-05	5.720E-06	5.720E-06	6.864E-05
Toluene	2.86	3.718E-05	3.718E-05	4.462E-04	3.718E-05	3.718E-05	4.462E-04	3.718E-05	3.718E-05	4.462E-04
BiPhenyl	26.50	3.445E-04	3.445E-04	4.134E-03	3.445E-04	3.445E-04	4.134E-03	3.445E-04	3.445E-04	4.134E-03

## Land Treatment

Substance	EmFac	Per Application Emissions			By District Emissions					
					Single Facility			Facilities		
		lb/hr/facility	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day
VOC	0.007	0.0071	0.1690	3.100E-02	0.0071	0.1704	3.110E-02	0.0071	0.1704	3.110E-02
	% of VOC			lbs/yr						lbs/yr
Benzene	1.00	7.100E-05	1.690E-03	6.200E-01	7.100E-05	1.704E-03	6.220E-01	7.100E-05	1.704E-03	6.220E-01
BiPhenyl	26.50	1.882E-03	4.480E-02	1.644E+01	1.882E-03	4.516E-02	1.648E+01	1.882E-03	4.516E-02	1.648E+01

# Genesis Solar Energy Project

## Fuel Dispensing

Fuel	gal/yr	hrs/dy	day/yr
Gasoline	10,768	24	365
Diesel	6,391	24	365

Fuel / Substance	EmFac	Per Application				By District						
		Emissions				Emissions						
		lbs/1,000 gal	lb/hr	lb/day	tpy	Single Facility			Facilities			
					lb/hr	lb/day	tpy		lb/hr	lb/day	tpy	
Gasoline												
VOC	1.520	0.0040	0.0900	0.0167	0.0019	0.0448	0.0082		0.0019	0.0448	0.0082	
							lbs/yr					
Benzene	0.0075				9.230E-06	2.215E-04	0.0809		9.230E-06	2.215E-04	0.0809	
Ethylbenzene	0.0067				8.260E-06	1.982E-04	0.0724		8.260E-06	1.982E-04	0.0724	
Toluene	0.0336				4.130E-05	9.912E-04	0.3618		4.130E-05	9.912E-04	0.3618	
Xylene (Total)	0.0101				1.239E-05	2.974E-04	0.1085		1.239E-05	2.974E-04	0.1085	
Diesel							tpy					
VOC	0.03	4.566E-04	1.096E-02	2.000E-03	2.189E-05	5.253E-04	9.587E-05		2.189E-05	5.253E-04	9.587E-05	

# Genesis Solar Energy Project

## TOTAL - CRITERA EMISSIONS

Substance	Emission Sources	Per Application Emissions			By District Emissions						
		lb/hr	lb/day	tpy	Single Facility			Facilities			
					lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	
NOX											
	Boiler	6.61E-01	9.25E+00	3.30E-01	3.30E-01	4.62E+00	1.65E-01	6.61E-01	9.25E+00	3.30E-01	
	Emergency	2.91E+01	2.91E+01	7.57E-01	1.46E+01	1.46E+01	3.64E-01	1.46E+01	2.92E+01	7.29E-01	
	Fire	3.73E+00	3.73E+00	9.71E-02	1.87E+00	1.87E+00	4.67E-02	1.87E+00	3.74E+00	9.34E-02	
	Total - Permits	3.35E+01	4.21E+01	1.18E+00	1.68E+01	2.11E+01	5.76E-01	1.71E+01	4.21E+01	1.15E+00	
	Vehicles										
	On-Site	3.40E-03	8.10E-02	3.54E-01				3.40E-03	8.10E-02	3.54E-01	
	Delivery	8.83E-02	2.12E+00	2.75E-01				8.83E-02	2.12E+00	2.75E-01	
	Employee's	7.60E-02	1.82E+00	3.30E-01				7.60E-02	1.82E+00	3.30E-01	
	Total	1.68E-01	4.02E+00	9.59E-01	0.00E+00	0.00E+00	0.00E+00	1.68E-01	4.02E+00	9.59E-01	
	Grand Total	3.37E+01	4.61E+01	2.14E+00	1.68E+01	2.11E+01	5.76E-01	1.73E+01	4.62E+01	2.11E+00	
CO											
	Boiler	1.13E+00	1.58E+01	5.63E-01	5.63E-01	7.89E+00	2.82E-01	1.13E+00	1.58E+01	5.63E-01	
	Emergency	7.70E-01	7.70E-01	2.00E-02	3.84E-01	3.84E-01	9.61E-03	3.84E-01	7.69E-01	1.92E-02	
	Fire	6.20E-01	6.20E-01	1.62E-02	3.13E-01	3.13E-01	7.81E-03	3.13E-01	6.25E-01	1.56E-02	
	Total - Permits	2.52E+00	1.72E+01	5.99E-01	1.26E+00	8.58E+00	2.99E-01	1.82E+00	1.72E+01	5.98E-01	
	Vehicles										
	On-Site	2.30E-03	5.40E-02	2.39E-01				2.30E-03	5.40E-02	2.39E-01	
	Delivery	5.46E-02	1.31E+00	1.71E-01				5.46E-02	1.31E+00	1.71E-01	
	Employee's	7.56E-01	1.82E+01	3.31E+00				7.56E-01	1.82E+01	3.31E+00	
	Total	8.13E-01	1.95E+01	3.72E+00	0.00E+00	0.00E+00	0.00E+00	8.13E-01	1.95E+01	3.72E+00	
	Grand Total	3.33E+00	3.67E+01	4.32E+00	1.26E+00	8.58E+00	2.99E-01	2.64E+00	3.67E+01	4.32E+00	

# Genesis Solar Energy Project

VOC										
Boiler	1.76E-01	2.46E+00	8.80E-02	8.79E-02	1.23E+00	4.40E-02	1.76E-01	2.46E+00	8.79E-02	
Emergency	5.90E-01	5.90E-01	1.54E-02	2.96E-01	2.96E-01	7.39E-03	2.96E-01	5.91E-01	1.48E-02	
Fire	8.00E-02	8.00E-02	2.17E-03	4.17E-02	4.17E-02	1.04E-03	4.17E-02	8.33E-02	2.08E-03	
HTF Vents	3.37E-01	2.95E+00	5.40E-01	1.69E-01	1.48E+00	2.69E-01	3.37E-01	2.95E+00	5.38E-01	
HTF - Components	3.35E+00	3.78E+01	6.89E+00	1.68E+00	1.89E+01	3.45E+00	3.35E+00	3.78E+01	6.89E+00	
HTF Waste Loadout	1.30E-03	1.30E-03	7.80E-06	1.30E-03	1.30E-03	7.80E-06	1.30E-03	1.30E-03	7.80E-06	
Land treatment	7.10E-03	1.69E-01	3.10E-02	7.10E-03	1.70E-01	3.11E-02	7.10E-03	1.70E-01	3.11E-02	
Fuel Dispensing	4.46E-03	1.01E-01	1.87E-02	1.89E-03	4.54E-02	8.28E-03	1.89E-03	4.54E-02	8.28E-03	
Total - Permits	4.55E+00	4.41E+01	7.59E+00	2.28E+00	2.21E+01	3.81E+00	4.21E+00	4.41E+01	7.57E+00	
Vehicles										
On-Site	5.00E-04	1.20E-02	5.40E-02	5.00E-04	1.20E-02	5.40E-02	5.00E-04	1.20E-02	5.40E-02	
Delivery	8.75E-03	2.10E-01	2.70E-02	8.75E-03	2.10E-01	2.70E-02	8.75E-03	2.10E-01	2.70E-02	
Employee's	6.30E-02	1.51E+00	2.80E-01	6.30E-02	1.51E+00	2.80E-01	6.30E-02	1.51E+00	2.80E-01	
Total	7.23E-02	1.73E+00	3.61E-01	7.23E-02	1.73E+00	3.61E-01	7.23E-02	1.73E+00	3.61E-01	
Grand Total	4.62E+00	4.58E+01	7.95E+00	2.35E+00	2.39E+01	4.17E+00	4.28E+00	4.58E+01	7.94E+00	

SOx										
Boiler	1.60E-02	2.24E-01	8.00E-03	8.00E-03	1.12E-01	4.00E-03	1.60E-02	2.24E-01	8.00E-03	
Emergency	3.00E-02	3.00E-02	1.50E-05	1.77E-02	1.77E-02	4.43E-04	1.77E-02	3.55E-02	8.87E-04	
Fire	1.00E-02	1.00E-02	1.60E-04	4.17E-03	4.17E-03	1.04E-04	4.17E-03	8.33E-03	2.08E-04	
Total - Permits	5.60E-02	2.64E-01	8.18E-03	2.99E-02	1.34E-01	4.55E-03	3.79E-02	2.68E-01	9.10E-03	
Vehicles										
On-Site	1.90E-05	4.50E-03	2.00E-03	1.90E-05	4.50E-03	2.00E-03	1.90E-05	4.50E-03	2.00E-03	
Delivery	1.33E-04	3.20E-03	4.00E-04	1.33E-04	3.20E-03	4.00E-04	1.33E-04	3.20E-03	4.00E-04	
Employee's	8.30E-04	2.00E-02	3.00E-03	8.30E-04	2.00E-02	3.00E-03	8.30E-04	2.00E-02	3.00E-03	
Total	9.82E-04	2.77E-02	5.40E-03	9.82E-04	2.77E-02	5.40E-03	9.82E-04	2.77E-02	5.40E-03	
Grand Total	5.70E-02	2.92E-01	1.36E-02	3.09E-02	1.62E-01	9.95E-03	3.89E-02	2.96E-01	1.45E-02	

# Genesis Solar Energy Project

PM10										
Boiler	2.99E-01	4.19E+00	1.50E-01	1.50E-01	2.10E+00	7.49E-02	2.99E-01	4.19E+00	1.50E-01	
Cooling Towers	2.36E+00	3.55E+01	3.78E+00	1.18E+00	1.78E+01	1.90E+00	2.37E+00	3.55E+01	3.79E+00	
Emergency	1.10E-01	1.10E-01	2.77E-03	5.32E-02	5.32E-02	1.33E-03	5.32E-02	1.06E-01	2.66E-03	
Fire	8.00E-02	8.00E-02	1.99E-03	3.82E-02	3.82E-02	9.55E-04	3.82E-02	7.64E-02	1.91E-03	
Total - Permits	2.85E+00	3.99E+01	3.93E+00	1.43E+00	2.00E+01	1.97E+00	2.76E+00	3.99E+01	3.94E+00	
Vehicles										
On-Site	2.40E-04	5.70E-03	2.50E-02	2.40E-04	5.70E-03	2.50E-02	2.40E-04	5.70E-03	2.50E-02	
Delivery	4.17E-03	1.00E-01	1.25E-02	4.17E-03	1.00E-01	1.25E-02	4.17E-03	1.00E-01	1.25E-02	
Employee's	6.30E-03	1.50E-01	2.70E-02	6.30E-03	1.50E-01	2.70E-02	6.30E-03	1.50E-01	2.70E-02	
Fugitive Dust	3.56E+00	8.54E+01	1.56E+01	3.56E+00	8.54E+01	1.56E+01	3.56E+00	8.54E+01	1.56E+01	
Total	3.57E+00	8.57E+01	1.57E+01	3.57E+00	8.57E+01	1.57E+01	3.57E+00	8.57E+01	1.57E+01	
Grand Total	6.42E+00	1.26E+02	1.96E+01	5.00E+00	1.06E+02	1.76E+01	6.33E+00	1.26E+02	1.96E+01	

PM2.5										
Boiler	2.99E-01	4.19E+00	1.50E-01	1.50E-01	2.10E+00	7.49E-02	2.99E-01	4.19E+00	1.50E-01	
Cooling Towers	2.36E+00	3.55E+01	3.78E+00	1.18E+00	1.78E+01	1.90E+00	2.37E+00	3.55E+01	3.79E+00	
Emergency	1.10E-01	1.10E-01	2.77E-03	5.32E-02	5.32E-02	1.33E-03	5.32E-02	1.06E-01	2.66E-03	
Fire	8.00E-02	8.00E-02	1.99E-03	3.82E-02	3.82E-02	9.55E-04	3.82E-02	7.64E-02	1.91E-03	
Total - Permits	2.85E+00	3.99E+01	3.93E+00	1.43E+00	2.00E+01	1.97E+00	2.76E+00	3.99E+01	3.94E+00	
Vehicles										
On-Site	2.40E-04	5.70E-03	2.50E-02	2.40E-04	5.70E-03	2.50E-02	2.40E-04	5.70E-03	2.50E-02	
Delivery	4.17E-03	1.00E-01	1.25E-02	4.17E-03	1.00E-01	1.25E-02	4.17E-03	1.00E-01	1.25E-02	
Employee's	6.30E-03	1.50E-01	2.70E-02	6.30E-03	1.50E-01	2.70E-02	6.30E-03	1.50E-01	2.70E-02	
Fugitive Dust	7.54E-01	1.81E+01	3.30E+00	7.54E-01	1.81E+01	3.30E+00	7.54E-01	1.81E+01	3.30E+00	
Total	7.65E-01	1.84E+01	3.36E+00	7.65E-01	1.84E+01	3.36E+00	7.65E-01	1.84E+01	3.36E+00	
Grand Total	3.61E+00	5.82E+01	7.30E+00	2.19E+00	3.83E+01	5.34E+00	3.52E+00	5.83E+01	7.31E+00	

# Genesis Solar Energy Project

## TOTAL - TOXIC EMISSIONS

Substance	Emission Sources	Per Application Emissions			By District Emissions						
		lb/hr	lb/day	lbs/yr	Single Facility			Facilities			
					lb/hr	lb/day	lbs/yr	lb/hr	lb/day	lbs/yr	
1,3-Butadiene											
	Generator	0.00E+00	0.00E+00	0.00E+00	1.57E-02	1.57E-02	7.83E-01	1.57E-02	3.13E-02	1.57E+00	
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	3.26E-03	3.26E-03	1.63E-01	3.26E-03	6.52E-03	3.26E-01	
	Total	0.00E+00	0.00E+00	0.00E+00	1.89E-02	1.89E-02	9.46E-01	1.89E-02	3.78E-02	1.89E+00	
Acetaldehyde											
	Boilers	2.71E-04	3.80E-03	3.99E-03	1.36E-04	1.90E-03	1.36E-01	2.71E-04	3.80E-03	2.71E-01	
	Generator	0.00E+00	0.00E+00	0.00E+00	5.64E-02	5.64E-02	2.82E+00	5.64E-02	1.13E-01	5.64E+00	
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	1.17E-02	1.17E-02	5.87E-01	1.17E-02	2.35E-02	1.17E+00	
	Total	2.71E-04	3.80E-03	3.99E-03	6.83E-02	7.00E-02	3.54E+00	6.84E-02	1.40E-01	7.09E+00	
Acrolein											
	Boilers	2.65E-04	3.71E-03	3.90E-03	1.33E-04	1.86E-03	1.33E-01	2.65E-04	3.71E-03	2.65E-01	
	Generator	0.00E+00	0.00E+00	0.00E+00	2.44E-03	2.44E-03	1.22E-01	2.44E-03	4.88E-03	2.44E-01	
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	5.09E-04	5.09E-04	2.54E-02	5.09E-04	1.02E-03	5.09E-02	
	Total	2.65E-04	3.71E-03	3.90E-03	3.08E-03	4.81E-03	2.80E-01	3.21E-03	9.61E-03	5.60E-01	
Arsenic											
	Cooling Towers	1.31E-05	1.96E-04	2.08E-05	6.54E-06	9.81E-05	1.05E-05	1.31E-05	1.96E-04	2.09E-05	
	Generator	0.00E+00	0.00E+00	0.00E+00	5.62E-04	5.62E-04	2.81E-02	5.62E-04	1.12E-03	5.62E-02	
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	1.17E-04	1.17E-04	5.85E-03	1.17E-04	2.34E-04	1.17E-02	
	Total	1.31E-05	1.96E-04	2.08E-05	6.85E-04	7.77E-04	3.39E-02	6.92E-04	1.55E-03	6.79E-02	
Barium											
	Cooling Towers	4.68E-05	7.02E-04	7.49E-05	2.35E-05	3.52E-04	3.75E-05	4.69E-05	7.04E-04	7.50E-05	
	Total	4.68E-05	7.02E-04	7.49E-05	2.35E-05	3.52E-04	3.75E-05	4.69E-05	7.04E-04	7.50E-05	
Benzene											
	Boilers	1.43E-04	2.00E-03	2.10E-03	7.15E-05	1.00E-03	7.15E-02	1.43E-04	2.00E-03	1.43E-01	
	Ulage Vents	1.37E-01	1.20E+00	4.38E+02	6.84E-02	5.99E-01	2.19E+02	1.37E-01	1.20E+00	4.37E+02	
	Component Fugitives	1.36E+00	1.53E+01	5.59E+03	6.80E-01	7.67E+00	2.80E+03	1.36E+00	1.53E+01	5.60E+03	
	Waste Load-Out	5.28E-04	5.28E-04	6.33E-03	5.28E-04	5.28E-04	6.33E-03	5.28E-04	5.28E-04	6.33E-03	
	Land Treatment	7.10E-05	1.69E-03	6.20E-01	7.10E-05	1.70E-03	6.22E-01	7.10E-05	1.70E-03	6.22E-01	
	Gasoline Dispensing	0.00E+00	0.00E+00	0.00E+00	9.23E-06	2.22E-04	8.09E-02	9.23E-06	2.22E-04	8.09E-02	
	Total	1.50E+00	1.65E+01	6.03E+03	7.49E-01	8.27E+00	3.02E+03	1.50E+00	1.65E+01	6.03E+03	

# Genesis Solar Energy Project

BiPhenyl										
	Ulage Vents	8.93E-02	3.44E-03	2.86E+02	4.47E-02	3.91E-01	1.43E+02	8.93E-02	7.82E-01	2.85E+02
	Component Fugitives	8.88E-01	1.00E+01	3.65E+03	4.44E-01	5.00E+00	1.83E+03	8.88E-01	1.00E+01	3.65E+03
	Waste Load-Out	3.45E-04	3.45E-04	4.13E-03	3.45E-04	3.45E-04	4.13E-03	3.45E-04	3.45E-04	4.13E-03
	Land Treatment	1.88E-03	4.48E-02	1.64E+01	1.88E-03	4.52E-02	1.65E+01	1.88E-03	4.52E-02	1.65E+01
	Total	9.79E-01	1.01E+01	3.95E+03	4.91E-01	5.44E+00	1.99E+03	9.79E-01	1.08E+01	3.95E+03
Cadmium										
	Generator	0.00E+00	0.00E+00	0.00E+00	1.08E-04	1.08E-04	5.40E-03	1.08E-04	2.16E-04	1.08E-02
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	2.25E-05	2.25E-05	1.13E-03	2.25E-05	4.50E-05	2.25E-03
	Total	0.00E+00	0.00E+00	0.00E+00	1.31E-04	1.31E-04	6.53E-03	1.31E-04	2.61E-04	1.31E-02
Chromium hexavalent										
	Generator	0.00E+00	0.00E+00	0.00E+00	1.44E-05	1.44E-05	7.20E-04	1.44E-05	2.88E-05	1.44E-03
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	3.00E-06	3.00E-06	1.50E-04	3.00E-06	6.00E-06	3.00E-04
	Total	0.00E+00	0.00E+00	0.00E+00	1.74E-05	1.74E-05	8.70E-04	1.74E-05	3.48E-05	1.74E-03
Ethyl benzene										
	Boilers	1.32E-04	1.85E-03	1.95E-03	6.62E-05	9.26E-04	6.62E-02	1.32E-04	1.85E-03	1.32E-01
	Gasoline Dispensing	0.00E+00	0.00E+00	0.00E+00	8.26E-06	1.98E-04	7.24E-02	8.26E-06	1.98E-04	7.24E-02
	Total	1.32E-04	1.85E-03	1.95E-03	7.44E-05	1.12E-03	1.39E-01	1.41E-04	2.05E-03	2.05E-01
Formaldehyde										
	Boilers	2.79E-04	3.91E-03	4.11E-03	1.40E-04	1.96E-03	1.40E-01	2.79E-04	3.91E-03	2.79E-01
	Generator	0.00E+00	0.00E+00	0.00E+00	1.24E-01	1.24E-01	6.21E+00	1.24E-01	2.49E-01	1.24E+01
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	2.59E-02	2.59E-02	1.29E+00	2.59E-02	5.18E-02	2.59E+00
	Total	2.79E-04	3.91E-03	4.11E-03	1.50E-01	1.52E-01	7.65E+00	1.50E-01	3.04E-01	1.53E+01
Hexane										
	Boilers	3.71E-04	5.19E-03	5.45E-03	1.85E-04	2.59E-03	1.85E-01	3.71E-04	5.19E-03	3.71E-01
	Total	3.71E-04	5.19E-03	5.45E-03	1.85E-04	2.59E-03	1.85E-01	3.71E-04	5.19E-03	3.71E-01
Manganese										
	Cooling Towers	4.12E-05	6.17E-04	6.58E-05	2.06E-05	3.09E-04	3.30E-05	4.12E-05	6.18E-04	6.60E-05
	Total	4.12E-05	6.17E-04	6.58E-05	2.06E-05	3.09E-04	3.30E-05	4.12E-05	6.18E-04	6.60E-05

# Genesis Solar Energy Project

Mercury										
	Generator	0.00E+00	0.00E+00	0.00E+00	1.66E-04	1.66E-04	8.28E-03	1.66E-04	3.31E-04	1.66E-02
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	3.45E-05	3.45E-05	1.73E-03	3.45E-05	6.90E-05	3.45E-03
	Total	0.00E+00	0.00E+00	0.00E+00	2.00E-04	2.00E-04	1.00E-02	2.00E-04	4.00E-04	2.00E-02
Molybdenum										
	Cooling Towers	3.41E-04	5.11E-03	5.45E-04	1.71E-04	2.56E-03	2.73E-04	3.41E-04	5.12E-03	5.46E-04
	Total	3.41E-04	5.11E-03	5.45E-04	1.71E-04	2.56E-03	2.73E-04	3.41E-04	5.12E-03	5.46E-04
Naphthalene										
	Boilers	1.39E-05	1.95E-04	2.05E-04	6.97E-06	9.76E-05	6.97E-03	1.39E-05	1.95E-04	1.39E-02
	Total	1.39E-05	1.95E-04	2.05E-04	6.97E-06	9.76E-05	6.97E-03	1.39E-05	1.95E-04	1.39E-02
Nickel										
	Generator	0.00E+00	0.00E+00	0.00E+00	2.81E-04	2.81E-04	1.40E-02	2.81E-04	5.62E-04	2.81E-02
	Fire Pump	0.00E+00	0.00E+00	0.00E+00	5.85E-05	5.85E-05	2.93E-03	5.85E-05	1.17E-04	5.85E-03
	Total	0.00E+00	0.00E+00	0.00E+00	3.39E-04	3.39E-04	1.70E-02	3.39E-04	6.79E-04	3.39E-02
PAH										
	Boilers	4.76E-06	6.67E-05	7.01E-05	2.38E-06	3.34E-05	2.38E-03	4.76E-06	6.67E-05	4.76E-03
	Total	4.76E-06	6.67E-05	7.01E-05	2.38E-06	3.34E-05	2.38E-03	4.76E-06	6.67E-05	4.76E-03
Phenol										
	Ulage Vents	1.48E-03	1.30E-02	4.75E+00	7.41E-04	6.49E-03	2.37E+00	1.48E-03	1.30E-02	4.74E+00
	Component Fugitives	1.47E-02	1.66E-01	6.06E+01	7.37E-03	8.31E-02	3.03E+01	1.47E-02	1.66E-01	6.06E+01
	Waste Load-Out	5.72E-06	5.72E-06	6.86E-05	5.72E-06	5.72E-06	6.86E-05	5.72E-06	5.72E-06	6.86E-05
	Total	1.62E-02	1.79E-01	6.54E+01	8.12E-03	8.96E-02	3.27E+01	1.62E-02	1.79E-01	6.54E+01
Propylene										
	Boilers	2.72E-02	3.81E-01	4.01E-01	1.36E-02	1.91E-01	1.36E+01	2.72E-02	3.81E-01	2.72E+01
	Total	2.72E-02	3.81E-01	4.01E-01	1.36E-02	1.91E-01	1.36E+01	2.72E-02	3.81E-01	2.72E+01
Toluene										
	Boilers	1.90E-03	2.66E-02	2.79E-02	9.50E-04	1.33E-02	9.50E-01	1.90E-03	2.66E-02	1.90E+00
	Ulage Vents	9.64E-03	8.44E-02	3.09E+01	4.82E-03	4.22E-02	1.54E+01	9.64E-03	8.44E-02	3.08E+01
	Component Fugitives	9.58E-02	1.08E+00	3.94E+02	4.79E-02	5.40E-01	1.97E+02	9.58E-02	1.08E+00	3.94E+02
	Waste Load-Out	3.72E-05	3.72E-05	4.46E-04	3.72E-05	3.72E-05	4.46E-04	3.72E-05	3.72E-05	4.46E-04
	Gasoline Dispensing	0.00E+00	0.00E+00	0.00E+00	4.13E-05	9.91E-04	3.62E-01	4.13E-05	9.91E-04	3.62E-01
	Total	1.07E-01	1.19E+00	4.25E+02	5.38E-02	5.96E-01	2.14E+02	1.07E-01	1.19E+00	4.27E+02

# Genesis Solar Energy Project

Xylene											
	Boilers	1.10E-03	1.54E-02	1.62E-02	5.50E-04	7.70E-03	5.50E-01	1.10E-03	1.54E-02	1.10E+00	
	Gasoline Dispensing	0.00E+00	0.00E+00	0.00E+00	1.24E-05	2.97E-04	1.09E-01	1.24E-05	2.97E-04	1.09E-01	
	Total	1.10E-03	1.54E-02	1.62E-02	5.62E-04	8.00E-03	6.59E-01	1.11E-03	1.57E-02	1.21E+00	