

DOCKET**08-AFC-2****NOTICE OF PROPOSED PRELIMINARY
DETERMINATION OF COMPLIANCE**DATE DEC 23 2008RECD. JAN 05 2009

NOTICE IS HEREBY GIVEN that the Kern County Air Pollution Control District solicits public comment on the proposed issuance of Determination of Compliance (DOC) to Beacon Solar LLC for the installation of a nominal 250-MW solar trough power plant, located in Sections 3,4, 8 and 9, T31S, R37E, 1.4 Mi East of Highway 14, Fremont Valley, California. The analysis of the regulatory basis for this action, Project No. 080414, is available for public inspection at the District office at the 2700 "M" St, Ste 302, Bakersfield, CA.

Written comments regarding this project will be received by the Kern County Air Pollution Control District (KCAPCD) until Wednesday, January 23, 2009, and will be considered prior to taking final action on the proposed project. Please submit written comments to David L. Jones, Air Pollution Control Officer, 2700 "M" St, Ste 302, Bakersfield, CA.

For further information on this application, contact Glen Stephens of KCAPCD at (661) 862-5250.

Published: December 23, 2008

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369001
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

30.0-MMBtu/hr Natural Gas Fueled Boiler No. 1

(See attached sheets for equipment description and conditions)

S SW04	T 31S	R 37E	Location: APN: 469-021-10	Startup Inspection
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This document serves as a temporary Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires equipment authorized by this Determination of Compliance be installed and operated in accordance with conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth on this document must be satisfied before a Permit to Operate can be granted.

UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: 30.0-MMBtu/hr Natural Gas Fueled Boiler No. 1, including following equipment and design specifications:

A. 30.0-MMBtu/hr (900-hp) natural gas fueled boiler with low-NOx burner system.

DESIGN CONDITIONS:

- a. Boiler shall be fueled exclusively with natural gas. (Rule 210.1)
- b. Boiler described above shall be equipped with low NOx burner and be in accordance with manufacturer's specifications. (Rule 210.1)
- c. Boiler exhaust stack shall be equipped with provisions for collection of pollutant samples in manner consistent with U. S. EPA test methods. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Visible emissions from boiler exhaust stack shall not exceed 5% opacity or Ringelmann No. ¼. (Rule 210.1 BACT Requirement)
2. Boiler operation shall not exceed 1000-hours/year without prior District approval. (Rule 210.1)
3. Boiler exhaust concentration of sulfur oxides (calculated as SO₂) shall not exceed 2000 parts per million on a volume basis (ppmv). (Rule 407)
4. Volume of natural gas used as fuel for boiler shall not exceed 28.6 million standard cubic feet per year (MMscf/yr). (Rule 210.1)
5. Operator shall comply with applicable monitoring, testing, and recordkeeping requirements of Rule 425.2. (Rule 425.2)
6. Operator shall maintain annual records of fuel use. (Rule 425.2)
7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH & SC 41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Boiler stack shall be equipped with sampling ports (in accordance with California Air Resources Board Standards), sampling platform, access to sampling platforms, and utilities for sampling equipment to perform source-sampling operations. (Rule 108.1)

Initial compliance with NOx emission limits shall be verified by compliance test utilizing test methods listed in Subsection VI.B of Rule 425.2 within 60-days of District initial start-up inspection. (Rule 210.1)

Initial testing for Rule 425.2 shall commence within 60-days after annual boiler heat attains or exceeds 90,000 therms (9,000-MMBtu). Boiler shall be tested in accordance with test methods listed in Subsection VI.B and in accordance to schedule in Subsection VI.C of Rule 425.2. (Rule 425.2)

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.22 lb/hr
	3.04 lb/day
	0.11 ton/yr
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.02 lb/hr
	0.24 lb/day
	0.01 ton/yr
<u>Oxides of Nitrogen (NO_x as NO₂):</u>	9 ppmv @ 3% O ₂ (Rule 210.1 BACT Rqmt.)
	0.33 lb/hr
	4.62 lb/day
	0.17 ton/yr
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.16 lb/hr
	2.20 lb/day
	0.08 ton/yr
<u>Carbon Monoxide:</u>	50 ppmv @ 3% O ₂
	1.11 lb/hr
	15.54 lb/day
	0.56 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369002
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

30.0-MMBtu/hr Natural Gas Fueled Boiler No. 2

(See attached sheets for equipment description and conditions)

S SW04	T 31S	R 37E	Location: APN: 469-021-10	Startup Inspection
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This document serves as a temporary Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires equipment authorized by this Determination of Compliance be installed and operated in accordance with conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth on this document must be satisfied before a Permit to Operate can be granted.

UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: 30.0-MMBtu/hr Natural Gas Fueled Boiler No. 2, including following equipment and design specifications:

A. 30.0-MMBtu/hr (900-hp) natural gas fueled boiler with low-NOx burner system.

DESIGN CONDITIONS:

- a. Boiler shall be fueled exclusively with natural gas. (Rule 210.1)
- b. Boiler described above shall be equipped with low NOx burner and be in accordance with manufacturer's specifications. (Rule 210.1)
- c. Boiler exhaust stack shall be equipped with provisions for collection of pollutant samples in manner consistent with U. S. EPA test methods. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Visible emissions from boiler exhaust stack shall not exceed 5% opacity or Ringelmann No. ¼. (Rule 210.1 BACT Requirement)
2. Boiler operation shall not exceed 1000-hours/year without prior District approval. (Rule 210.1)
3. Boiler exhaust concentration of sulfur oxides (calculated as SO₂) shall not exceed 2000 parts per million on a volume basis (ppmv). (Rule 407)
4. Volume of natural gas used as fuel for boiler shall not exceed 28.6 million standard cubic feet per year (MMscf/yr). (Rule 210.1)
5. Operator shall comply with applicable monitoring, testing, and recordkeeping requirements of Rule 425.2. (Rule 425.2)
6. Operator shall maintain annual records of fuel use. (Rule 425.2)
7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH & SC 41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Boiler stack shall be equipped with sampling ports (in accordance with California Air Resources Board Standards), sampling platform, access to sampling platforms, and utilities for sampling equipment to perform source-sampling operations. (Rule 108.1)

Initial compliance with NOx emission limits shall be verified by compliance test utilizing test methods listed in Subsection VI.B of Rule 425.2 within 60-days of District initial start-up inspection. (Rule 210.1)

Initial testing for Rule 425.2 shall commence within 60-days after annual boiler heat attains or exceeds 90,000 therms (9,000-MMBtu). Boiler shall be tested in accordance with test methods listed in Subsection VI.B and in accordance to schedule in Subsection VI.C of Rule 425.2. (Rule 425.2)

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.22 lb/hr
	3.04 lb/day
	0.11 ton/yr
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.02 lb/hr
	0.24 lb/day
	0.01 ton/yr
<u>Oxides of Nitrogen (NO_x as NO₂):</u>	9 ppmv @ 3% O ₂ (Rule 210.1 BACT Rqmt.)
	0.33 lb/hr
	4.62 lb/day
	0.17 ton/yr
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.16 lb/hr
	2.20 lb/day
	0.08 ton/yr
<u>Carbon Monoxide:</u>	50 ppmv @ 3% O ₂
	1.11 lb/hr
	15.54 lb/day
	0.56 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
 Bakersfield, CA 93301-2370
 Phone: (661) 862-5250
 Fax: (661) 862-5251



Field Office
 Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369003
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

Forced Draft Cooling Tower with 11 Cells and High Efficiency Drift Eliminator

(See attached sheets for equipment description and conditions)

S SW04	T 31S	R 37E	Location: APN: APN: 469-021-10	Startup Inspection
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UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
 Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Forced Draft Cooling Tower with 11 Cells and High Efficiency Drift Eliminator, including following equipment and design specifications:

- A. Eleven 140-MMBtu (13,600-gpm) Cooling Tower Cells
- B. Eleven 250-hp Cooling Tower Fans
- C. Two 2,000-hp (79,000-gpm) Cooling Water Pumps
- D. Make-Up Water Tank
- E. 50-hp Make-Up Water Pump

OPERATIONAL CONDITIONS:

1. No hexavalent chromium containing compounds shall be added to cooling tower circulating water. (Rule 429.1)
2. Drift eliminator drift rate shall not exceed 0.0005%. (Rule 210.1)
3. Cooling tower total dissolved solids (TDS) shall not exceed 1600 mg/liter (0.00601 lb/gal). (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 149,000-gal/minute. (Rule 210.1)
5. Compliance with daily PM₁₀ emission rate shall be determined by the product of the following factors: circulating water rate (gallons per day), total dissolved solids in blowdown water (lb/gal), design drift rate (%), and correction factor. (Rule 210.1)
6. Operator shall comply with applicable monitoring, testing, and recordkeeping requirements of Rule 429.1. (Rule 429.1)
7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH & SC 41700)
9. Compliance with PM₁₀ emission limits shall be determined by continuous conductivity monitoring of blowdown water with results available to District staff upon request, and annual calibration verification available to District staff upon request. In-lieu of continuous conductivity monitoring, tests of total solids in blowdown water sample analysis shall be completed at a minimum of once per week by independent laboratory. (Rule 210.1)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1, 210.1, and 429.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.60 lb/hr
	9.55 lb/day
	1.74 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369004
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

Six 6000-Gallon Heat Transfer Fluid (HTF) Expansion Tanks Vented To Vapor Control System, Including HTF Piping Network

(See attached sheets for equipment description and conditions)

S SW01	T 31S	R 37E	Location: APN: 469-021-10 and Others	Startup Inspection
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UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Six 6000-Gallon Heat Transfer Fluid (HTF) Expansion Tanks Vented To Vapor Control System, Including HTF Piping Network, including following equipment and design specifications:

- A. Six 6,000 Gallon HTF Expansion Tanks (No. 1 through No. 6) each with PV vent valve,
- B. 25-hp Expansion tank pump,
- C. HTF Fluid pumps (400-hp),
- D. Nitrogen blanket system,
- E. HTF piping header,
- F. HTF ullage system,
- G. Solar field piping,
- H. Solar generating system piping, and
- I. Piping from expansion tanks to vapor control system.

DESIGN CONDITIONS:

- a. Each HTF tank shall be connected to volatile organic compound (VOC) vapor control system (Permit No. 0369005). (Rule 210.1)
- b. Volume of each tank shall not exceed 6,000-gallons without prior District approval. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. HTF expansion vessel shall be gas tight and vent to vapor control system (Permit No. 0369005). (Rule 210.1 BACT Requirement)
- 2. Permittee 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. (Rule 210.1 BACT Requirement)
 - 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. VOC leaks greater than 100-ppmv shall be tagged (with date and concentration) and repaired within seven calendar days of detection.
 - d. VOC leaks greater than 10,000-ppmv shall be tagged and repaired within 24-hours of detection.
 - e. Permittee shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, and repair made.
 - f. Permittee shall maintain record of the amount of HTF replaced on a monthly basis for a period of 5 years.

- g. Any detected leak exceeding 100-ppmv and not repaired in 7-days and 10,000-ppmv not repaired within 24-hours shall constitute a violation of this Authority to Construct (ATC)/Permit to Operate (PTO).
 - h. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.
3. The following component count shall be utilized to determine fugitive emissions:

Equipment	Service	Count
Valves	Light Liquid	3050
Pump Seals	Light Liquid	4
Connectors*	Light Liquid	7550
Pressure Relief Valve	Gas	6
Open-ended Lines	Light Liquid	44

- 4. Each expansion tank shall have fixed roof without holes, tears, or other such openings, except pressure/vacuum (PV) valves, in the cover which allow the emission of VOC. (Rule 210.1)
- 5. All expansion tank hatches shall be kept closed and gap-free, except during maintenance, inspection, or repair. (Rule 210.1)
- 6. Tank roof appurtenances shall not exhibit emissions exceeding 10,000-ppmv as methane measured with an instrument calibrated with methane and conducted in accordance with U.S. EPA Method 21. (Rule 411)
- 7. Each tank shall be maintained leak-free. A "leak" is defined as the dripping of liquid volatile organic compounds at a rate of three or more drops per minute, or vapor volatile organic compounds in excess of 10,000-ppm as equivalent methane as determined by U.S. EPA Test Method 21. (Rule 210.1)
- 8. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 210.1 and 209)
- 9. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 210.1)
- 10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC Sec 41700)
- 11. The District shall be notified of any breakdown conditions in accordance with Rule 111 (Equipment Breakdown). (Rule 111)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with hourly and concentration emission limits for VOC shall be verified pursuant to Rule 108.1 and KCAPCD Guidelines for Compliance Testing, within 60 days of District request.

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

Fugitive Emissions (Connectors, Pumps, etc.)

<u>Volatile Organic Compounds (VOC):</u>	21.39	lb/day
	3.90	ton/yr

VOC Emissions from HTF Expansion Assessed on Permit No. 0369005

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369005
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

Vapor Control System

(See attached sheets for equipment description and conditions)

S SW01	T 31S	R 37E	Location: APN: 469-021-10	Startup Inspection
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This document serves as a temporary Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires equipment authorized by this Determination of Compliance be installed and operated in accordance with conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth on this document must be satisfied before a Permit to Operate can be granted.

UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Vapor Control System, including following equipment and design specifications:

- A. Piping from expansion tanks (Permit Nos. 0369004) to vapor control system, and
- B. Two Granular Activated Carbon (GAC) adsorption units in series each with 1,000-lb GAC vessel, and sampling ports at entrance and exhaust.

DESIGN CONDITIONS:

- a. Vapor control system shall serve HTF expansion tanks and HTF piping system listed on Permit No. 0369004. (Rule 210.1)
- b. Carbon adsorption system shall provisions for monitoring between carbon beds and exhaust of carbon adsorption system. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. Carbon adsorption system shall be operated during heat transfer fluid (HTF) expansion system operation and during operation of HTF Ullage system. (Rule 210.1)
- 2. Control efficiency of carbon adsorption vessels shall be at least 95%. (Rule 210.1)
- 3. Vapor samples shall be taken monthly between carbon beds and at the exhaust carbon adsorption system and tested for carbon breakthrough. (Rule 210.1)
- 4. Carbon breakthrough shall be defined as VOC concentration of 10-ppmv as hexane measured after primary carbon bed measured with a flame ionization detector (FID) or photo ionization detector (PID). (Rule 210.1)
- 5. Primary carbon bed shall be replaced upon indication of carbon breakthrough. (Rule 210.1)
- 6. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with application under which this permit is issued. (Rule 210.1)
- 7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
- 8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC, Sec 41700)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with hourly and concentration emission limits for VOC shall be verified pursuant to Rule 108.1 and KCAPCD Guidelines for Compliance Testing, within 60 days of District request.

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

Controlled Vapor Emissions:

<u>Volatile Organic Compounds (VOC):</u>	0.63 lb/hr
	1.25 lb/day
	0.23 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369006
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

Emergency Firewater Pump Driven by 300-bhp Diesel Piston Engine

(See attached sheets for equipment description and conditions)

S SW01	T 31S	R 37E	Location: APN: 469-021-10	Startup Inspection
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This document serves as a temporary Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires equipment authorized by this Determination of Compliance be installed and operated in accordance with conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth on this document must be satisfied before a Permit to Operate can be granted.

UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Emergency Firewater Pump Driven by 300-bhp Diesel Piston Engine, including following equipment and design specifications:

- A. 3000-gallon per minute (gpm) Clarke firewater pump driven by 300-bhp John Deere Tier 3 diesel fueled piston engine

DESIGN CONDITIONS:

- a. Engine shall be equipped with turbocharger and aftercooler. (Rule 210.1 BACT Requirement)
- b. Elapsed time meter shall be installed and maintained indicating cumulative hours of engine operating time. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. Visible emissions from engine exhaust after engine has reached normal operating temperature shall not equal or exceed 5% opacity or Ringelmann No. ¼ for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
- 2. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft³ of gas at standard conditions. (Rule 404.1)
- 3. Fuel for diesel piston engine shall conform to California Air Resources Board standards for reformulated diesel fuel (low sulfur, 0.0015% by weight and low aromatic hydrocarbon, 20% by weight). (Rule 210.1 BACT Requirement)
- 4. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rule 210.1 and Rule 209)
- 5. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)
- 6. Operating record of this equipment shall be maintained in format approved in writing by District, kept for minimum of two years, and made available upon request of District personnel. Record shall include, at minimum, days and hours of operation, location of operation, amount of fuel oil supplied to this engine, and date(s), check(s) and certification(s) of injection timing. (Rules 209 and 210.1)
- 7. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC 41700)
- 8. Engine operation shall not exceed 200 hours per year without prior District approval. (Rule 210.1)
- 9. Diesel engine driving emergency fire water pump shall comply with Tier 3 emissions standards and Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. (California Code of Regulations 93115, Title 17)

10. Engine operation for maintenance and testing shall not exceed 50 hours per year without prior District approval. (Rule 210.1)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.15 gm/bhp-hr
	0.10 lb/hr
	2.38 lb/day
	0.01 ton/yr
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.003 lb/hr
	0.08 lb/day
	0.0003 ton/yr
<u>Oxides of Nitrogen (NO_x as NO₂):</u>	2.8 gm/bhp-hr
	1.85 lb/hr
	44.45 lb/day
	0.19 ton/yr
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.2 gm/bhp-hr
	0.13 lb/hr
	3.18 lb/day
	0.01 ton/yr
<u>Carbon Monoxide:</u>	1.72 lb/hr
	41.28 lb/day
	0.17 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PRELIMINARY DETERMINATION OF COMPLIANCE

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Phone: (661) 862-5250
Fax: (661) 862-5251



Field Office
Phone: (661) 824-7085

ISSUE DATE: MONTH XX, 2009	APPLICATION NO.: 0369007
EXPIRATION: MONTH XX, 2011	DATE: April 14, 2008

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED TO:

Beacon Solar, LLC

DETERMINATION OF COMPLIANCE IS HEREBY GRANTED FOR:

Bio-Remediation of Hydrocarbon Contaminated Soil

(See attached sheets for equipment description and conditions)

S SW01	T 31S	R 37E	Location: APN: 469-021-10	Startup Inspection
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This document serves as a temporary Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires equipment authorized by this Determination of Compliance be installed and operated in accordance with conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth on this document must be satisfied before a Permit to Operate can be granted.

UPON COMPLETION OF CONSTRUCTION AND/OR INSTALLATION, PLEASE TELEPHONE DISTRICT

Validation Signature:

David L. Jones
Air Pollution Control Officer

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware compliance with all conditions of approval imposed by any applicable Determination of Compliance remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Bio-Remediation of Hydrocarbon Contaminated Soil, including following equipment and design specifications:

- A. 400-ft. by 800-ft. bio-remediation/land-farm facility,
- B. Irrigation system for bio-remediation/land-farm facility, and
- C. Bio-remediation fertilizer for enhanced bio-remediation.

DESIGN CONDITIONS:

- a. Bio-remediation area shall be lined with minimum 60-mil high density polyethylene (HDPE) or alternate lining approved by Lahontan Regional Water Quality Board (LRWQB). (Rule 210.1)
- b. Permittee shall provide District with depth of bio-remediation operation area. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. Visible emissions from bio-remediation/land-farm facility when soil is not actively being added or removed shall not exceed 0% opacity for more than 5 minutes in any two hour period. (Rule 210.1 BACT Requirement)
- 2. Permittee shall have flame ionization detector (FID) or photo ionization detector (PID) on site to measure soil VOC emissions (measured as hexane). (Rule 210.1)
- 3. Upon usage of bio-remediation operation, Permittee shall maintain weekly VOC readings of bio-remediation area. Permittee shall provide protocol for VOC readings, to be approved by District staff. (Rule 210.1)
- 4. If soil in bio-remediation area registers a VOC reading of less than 50-ppm by volume, measured three inches above soil surface, with FID or PID compliance with Condition No. 5 is not required. (Rule 210.1)
- 5. If soil in bio-remediation area registers a VOC reading greater than or equal to 50-ppm (calibrated to methane) by volume, measured three inches above soil surface, with FID or PID bio-remediation operation shall comply with the following conditions. (Rule 210.1)
 - a. Affected soil stockpile shall be covered with minimum 10-mil plastic sheeting within 24-hours of detection to control emissions during treatment until VOC readings 3-inches above the uncovered soil stockpile are less than 50-ppmv. (Rule 210.1)
 - b. Covered soil stockpile shall be treated by enhanced bio-remediation using accepted environmental engineering practices to maintain conditions suitable for bio-remediation. Soil in stockpiles shall be conditioned as necessary through addition of nutrients, moisture and air as needed
 - c. The following parameters in treatment area shall be monitored monthly: average of nine VOC readings over surface area, soil acidity (pH), soil moisture content (% weight), soil temperature (°F), and Nutrient Ratio (C:N:P)
 - d. Records of soil treatment and monitoring results shall be maintained at the site for a period of at least 5-years, and
 - e. If bio-remediation operation is not effective after 2 months (i.e. VOC readings show no reduction in VOC content), Permittee shall propose alternate method of soil remediation for District approval.

6. Soil moisture content shall be maintained between 40% and 85% of water holding capacity (12% to 30% by weight). (Rule 210.1)
7. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC 41700)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Volatile Organic Compounds (VOC):</u>	0.10 lb/day
(as defined in Rule 210.1)	0.02 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

**Preliminary
Determination of Compliance**

**Beacon Solar Trough
Power Plant**

Kern County Air Pollution Control District
Application Nos.: 0369001 through 0369007

December 22, 2008

Glen Stephens, P.E.
Air Quality Engineer III

DETERMINATION OF COMPLIANCE ENGINEERING EVALUATION

Reviewed by: David L. Jones
Title: Air Pollution Control Officer KCAPCD
Date: September 10, 2008

Applicant: **Beacon Solar, LLC**

Mailing Address: 6 Belcourt Drive
Newport Beach, California 92660

Contact Name: Gary Palo, Director Development
Phone Number: 1-949-721-1554

Fax Number: 1-949-759-7510

Application Nos.: **0369001 – '007**

Project #: 080414

Location: 1.4 Mi East of Highway 14, Fremont Valley QS/T/R: SW04/T31S/R37E
UTM Coordinates: Zone 11 407.90 km East 3902.32 km North

Project Title: Support Emissions Units Serving Solar Power Plant

App. Rec.: 04/14/2008
180 Days: 10/13/2008

Deemed Complete: 04/16/2008
Submittal Date: 09/03/2008

Evaluation By: Glen E. Stephens

Project Contents:

I. Project Proposal	Page(s) <u>1 – 3</u>
II. Applicable Rules and Regulations	Page(s) <u>3 – 4</u>
III. Equipment Schematics	Page(s) <u>5 – 14</u>
IV. Equipment Listing	Page(s) <u>15</u>
V. Engineering Analysis	Page(s) <u>15 – 23</u>
VI. BACT Determination	Page(s) <u>23 – 24</u>
VII. CEQA Determination	Page(s) <u>25 – 32</u>
VIII. Emission Calculations	Page(s) <u>33 – 39</u>
IX. Emission Changes	Page(s) <u>40</u>
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I. PROPOSAL:

Beacon Solar, LLC (Beacon) is proposing to construct and operate the Beacon Solar Energy Project (BESP). BESP is a concentrated solar electric generating facility. Facility is to be constructed and operated on approximately 2,012 acres in the Fremont Valley area approximately four miles north of California City. BESP will use parabolic trough solar thermal technology to heat a heat transfer fluid (HTF) to a nominal working temperature of 740 degrees Fahrenheit (°F). Heated HTF is circulated through a heat exchanger known as a solar steam generator (SSG) to produce steam. Produced steam powers a conventional steam turbine

which is used to drive an electric generator (steam turbine generator [STG]). BESP will have a nominal electrical output of 250 megawatts (MW). Solar thermal technology will provide 100 percent of the power generated by the plant.

Emissions units proposed for BESP include the following:

1. Two 30-million British thermal units per hour (MMBtu/hr) natural gas fueled boilers used for start-up and HTF freeze protection;
2. One cooling tower with 11 cells used for cooling of steam from exit of STG;
3. HTF expansion system, that includes 6 HTF expansion tanks, solar generating field, and vapor control system utilizing carbon adsorption system;
4. One emergency fire water pump driven by 300-brake horsepower (bhp) diesel fueled engine;
5. Bioremediation/land farm that will be used for treatment of HTF spills.

Equipment determined to be exempt from permitting requirements of the Kern County Air Pollution Control District (District) are the following:

Equipment Description	Applicable Exemption
Diesel Fuel Storage Tank: 300-gallon fixed, unheated tank used to supply fuel for emergency fire water pump	Rule 202.II.G.5
Mirror Wash Vehicles: Water tanker trucks configured for washing parabolic mirrors in the solar field	Rule 202.I.B
Lube Oil Reservoir: 10,000-gallon fixed roof, unheated tank used to store lubrication oil for the Steam Turbine Generator.	Rule 202.II.G.6
Heating Ventilation and Air Conditioning (HVAC): Comfort air conditioning in offices and control room.	Rule 202.II.A.4 Rule 202.II.K.4
Water Heater: Hot water supply for restrooms and other auxiliary uses.	Rule 202.II.A.1
Water Treatment Systems: Pretreatment for boiler feed water, cooling tower feed water, and mirror wash water.	Emissions determined to be insignificant
Sodium Hydroxide Storage Tank: 8,500-gallon fixed roof, unheated tank used to store chemical for water treatment system.	No criteria air contaminant emissions
Sulfuric Acid Storage Tanks: Two 8,000-gallon fixed roof, unheated tank used to store chemical for water treatment system.	Emissions determined to be insignificant
Sodium Hypochlorite Storage Tanks: Two 8,500-gallon fixed roof, unheated tank used to store chemical for water treatment system.	Emissions determined to be insignificant

Because of the facility type and power generating capacity (thermal power plant with capacity greater than 50-MW) the California Energy Commission (CES) is the sole permitting agency. As the CEC is the sole permitting agency, the District will be issuing a “*Determination of Compliance*” (DOC) for the sources of air emissions that will be constructed at BESP. Mitigation measures for the project (if any) will be evaluated by the CEC. Facility is new; therefore, project will be evaluated for Best Available Control Technology (BACT) and Offset requirements.

II. **APPLICABLE RULES and REGULATIONS:**

- A. Rule 201 – Permits Required (Amended 05/02/96)
Any person building, altering, or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall first obtain authorization for such construction from the APCO. An Authority to Construct (ATC) shall remain in effect until the permit to operate the equipment for which the application was filed is granted, denied, or canceled.
- B. Rule 208.2 – Criteria for Finding of No Significant Environmental Impact [California Environmental Quality Act (CEQA)] (Amended 1/8/98)
Establishes criteria by which a project under review by KCAPCD can be found to have no potential for causing a significant environmental impact, and, thus, be granted a general rule exemption pursuant to Section 15061(b)(3) of the State CEQA Guidelines.
- C. Rule 210.1 – New and Modified Stationary Source Review (Amended 07/11/96)
a) Provide for pre-construction review of new and modified stationary sources of affected pollutants to insure emissions will not interfere with the attainment of ambient air quality standards.
b) Insure that appropriate new and modified sources of affected pollutants are constructed with Best Available Control Technology, and
c) Provide for no significant net increase in emissions from new and modified stationary sources for all non-attainment pollutants and their precursors.
- D. Rule 401 – Visible Emissions (Amended 11/29/93)
A person shall not discharge into the atmosphere emissions as dark or darker than Ringelmann 1 or 20% opacity for more than 3 minutes in any one hour.
- E. Rule 402 – Fugitive Dust (Amended 11/03/2004)
This rule is to reduce the amount of respirable particulate matter (PM₁₀) emitted from significant man-made fugitive dust sources and in an amount sufficient to maintain National Ambient Air Quality Standards.
- F. Rule 404.1 – Particulate Matter Concentration (Adopted 4/18/72)
A person shall not discharge from any single source operation, the construction or modification of which commenced after the adoption of this rule, particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.
- G. Rule 407 – Sulfur Compounds
A person shall not discharge into atmosphere sulfur compounds with discharge concentration greater than 0.2% by volume calculated as SO₂.

- H. Rule 409 – Fuel Burning Equipment – Combustion Contaminants
 Fuel burning equipment shall not discharge SOx, NOx, or PM in excess of U.S. EPA Standards of Performance. Additionally, combustion contaminants at point of discharge shall not exceed 0.1 grain per standard cubic foot.
- I. Rule 411 – Storage of Organic Liquids (Amended 03/07/96)
 Rule sets forth standards for storage of organic liquids with a true vapor pressure (TVP) of 1.5 or greater.
- J. Rule 414.2 – Soil Decontamination (Volatile Organic Compounds)
 VOC emissions from excavated, aeration, or treatment of soil that has been contaminated by organic compounds is required to comply with Excavation, Aeration, or Treatment requirements of Rule 414.2.
- K. Rule 419 – Nuisance (Adopted 4/18/72 Renumbered 5/89)
 A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property
- L. Rule 422 (Standards of Performance for New Stationary Sources) 40 CFR Part 60, Subpart III (Stationary Compression Ignition Internal Combustion Engines):
 Manufacturers, owners, and operators of compression ignition (diesel) engines are required to utilize engines certified to “Tier” standards in accordance with the schedules in Subpart III.
- M. Rule 425.2 – Boilers, Steam Generators, and Process Heaters (Oxides of Nitrogen)
 Boiler, steam generator, and process heater rated at 5,000,000 Btu/hr or greater with an annual heat input of 90,000 therms (1 therm = 100,000 Btu) or greater NOx emissions shall not exceed the following:
- | | Gaseous Fuel | Liquid Fuel |
|---------------------------------------|------------------------------|-------------------------------|
| During Normal Operation | 70 ppmv, or
0.09 lb/MMBtu | 115 ppmv, or
0.15 lb/MMBtu |
| During Natural Gas Curtailment | | 150 ppmv, or
0.19 lb/MMBtu |
- Additionally, CO emissions shall not exceed 400 ppmv.
- N. Rule 429.1 – Cooling Towers (Hexavalent Chromium – Adopted 07/13/92)
 Cooling towers shall not have water treatment chemicals containing hexavalent chromium.
- O. California Health and Safety Code (CH&SC) 41700
 Nuisance and hazardous emissions shall not cause any harm to the public (identical to Rule 419).

III. **EQUIPMENT SCHEMATICS:**

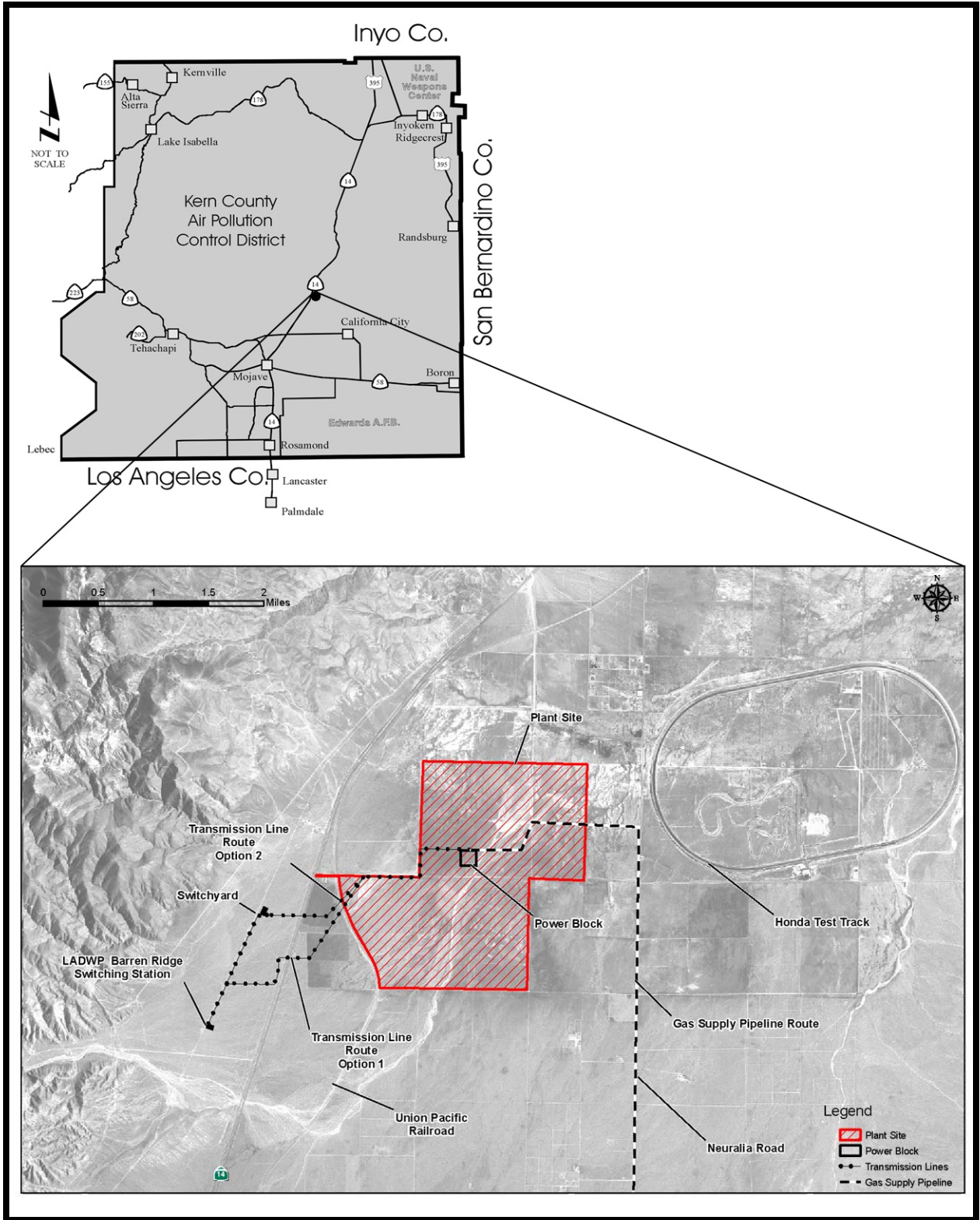


Figure 1: General Location of BSEP Facility

III. **EQUIPMENT SCHEMATICS (Continued):**

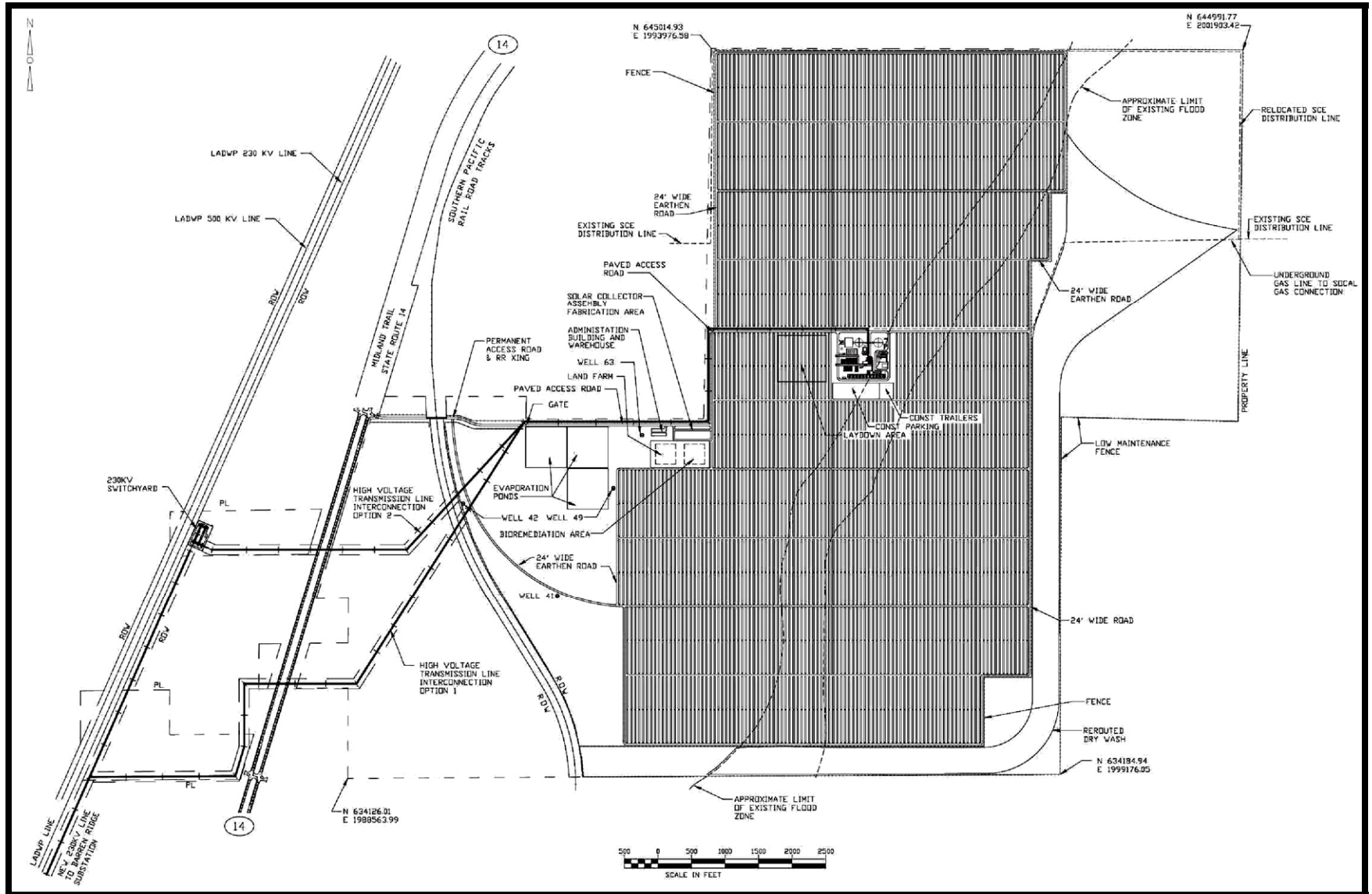


Figure 2: BSEP Facility Plot Plan

III. EQUIPMENT SCHEMATICS (Continued):

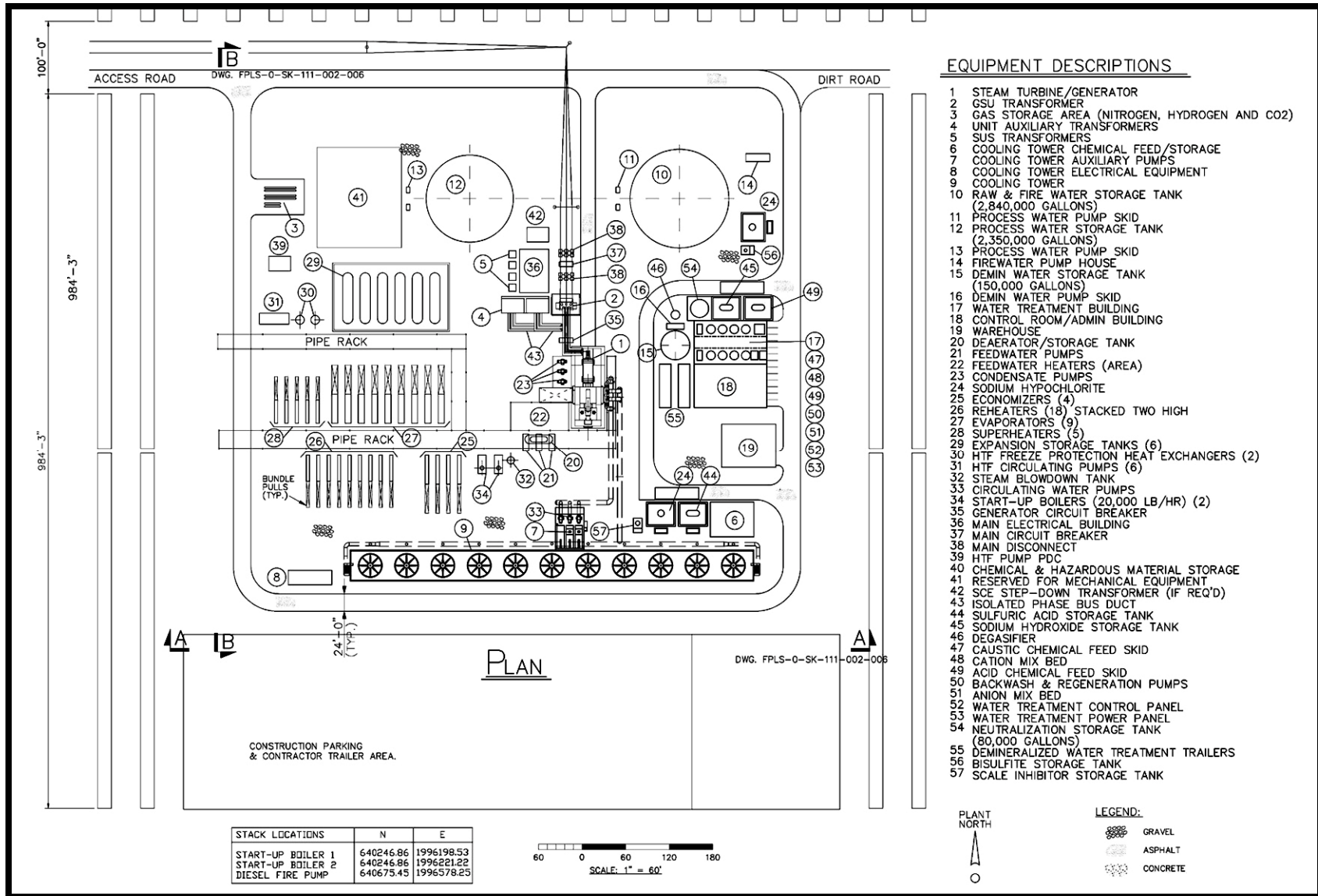


Figure 3: BSEP Facility Power Block Layout

III. **EQUIPMENT SCHEMATICS (Continued):**

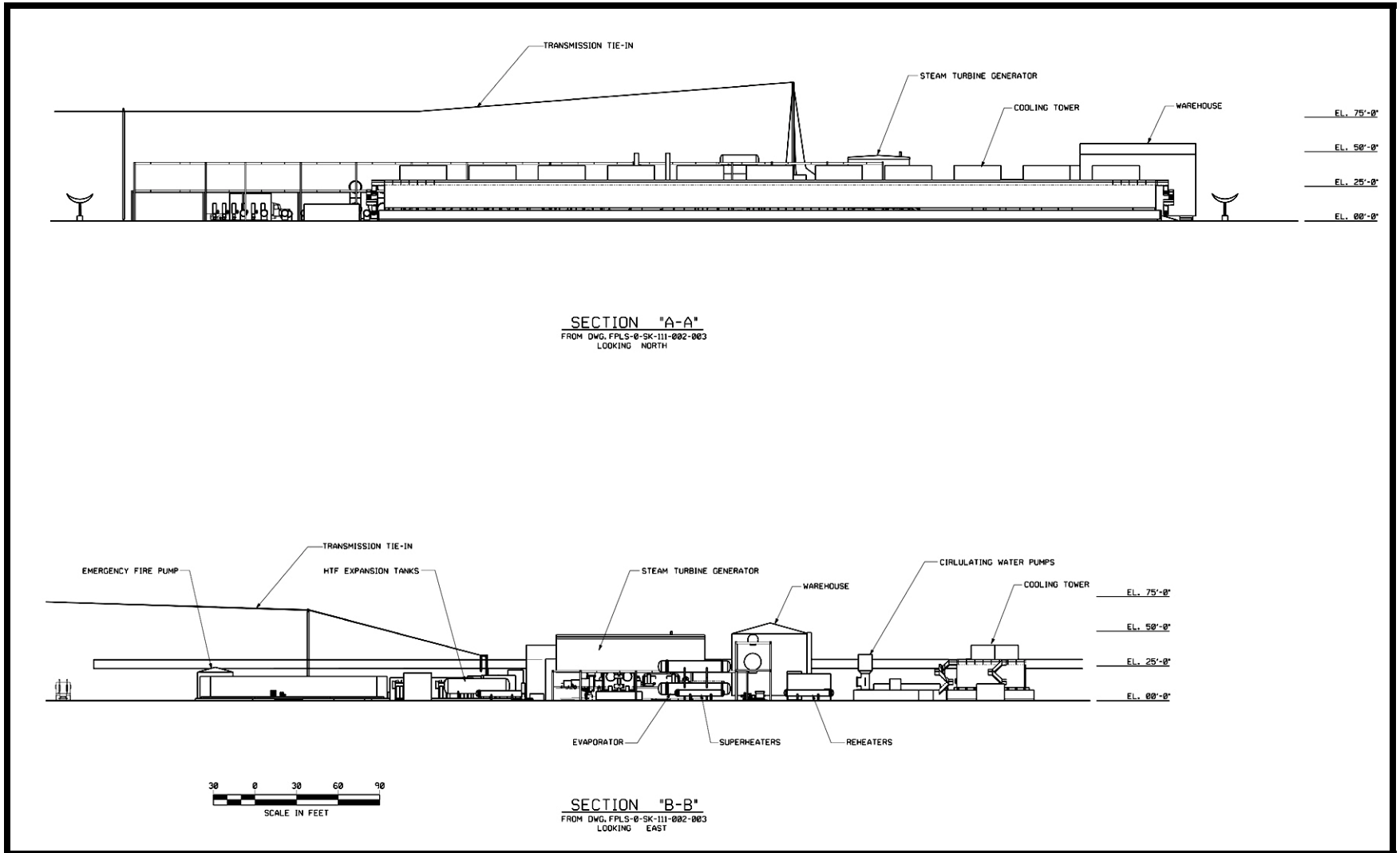


Figure 4: BSEP Facility Power Block Layout Elevation View

III. EQUIPMENT SCHEMATICS (Continued):

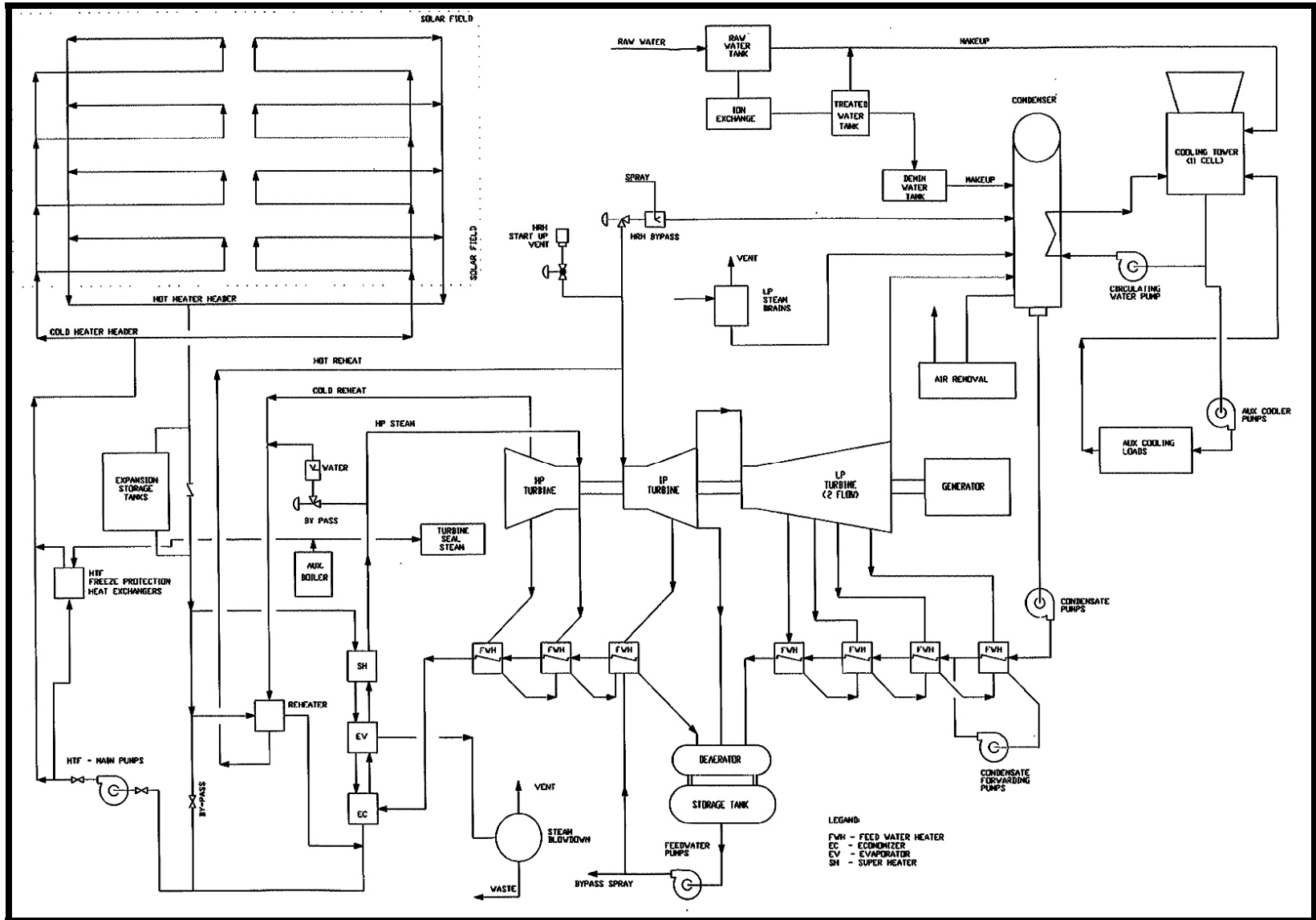


Figure 5: BSEP Facility Process Flow Diagram (General)

III. EQUIPMENT SCHEMATICS (Continued):



Figure 6: Picture of Trough Solar Collector

III. EQUIPMENT SCHEMATICS (Continued):



Figure 7: Picture of Similar Solar Generating Facility (Kramer Junction Solar Plant)

III. EQUIPMENT SCHEMATICS (Continued):

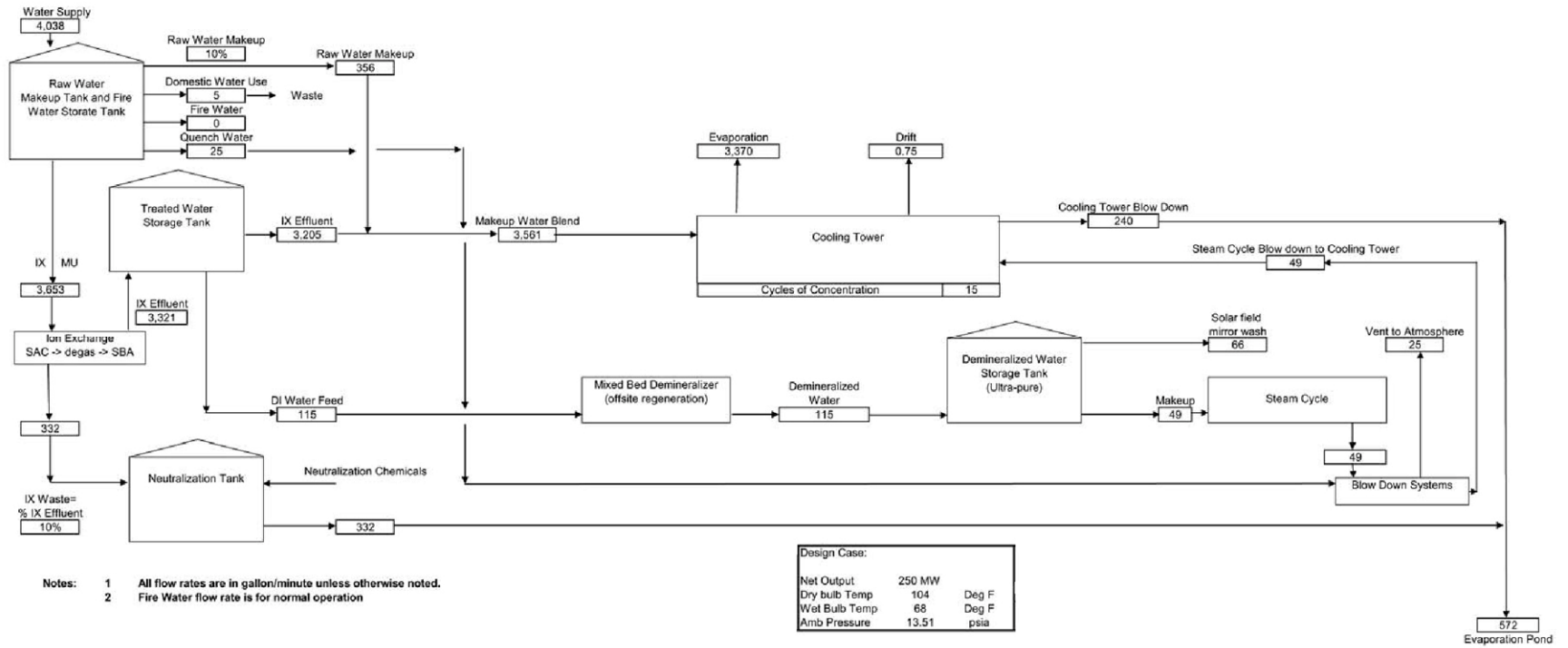


Figure 8: Water Balance Diagram (Summer Typical)

III. **EQUIPMENT SCHEMATICS (Continued):**

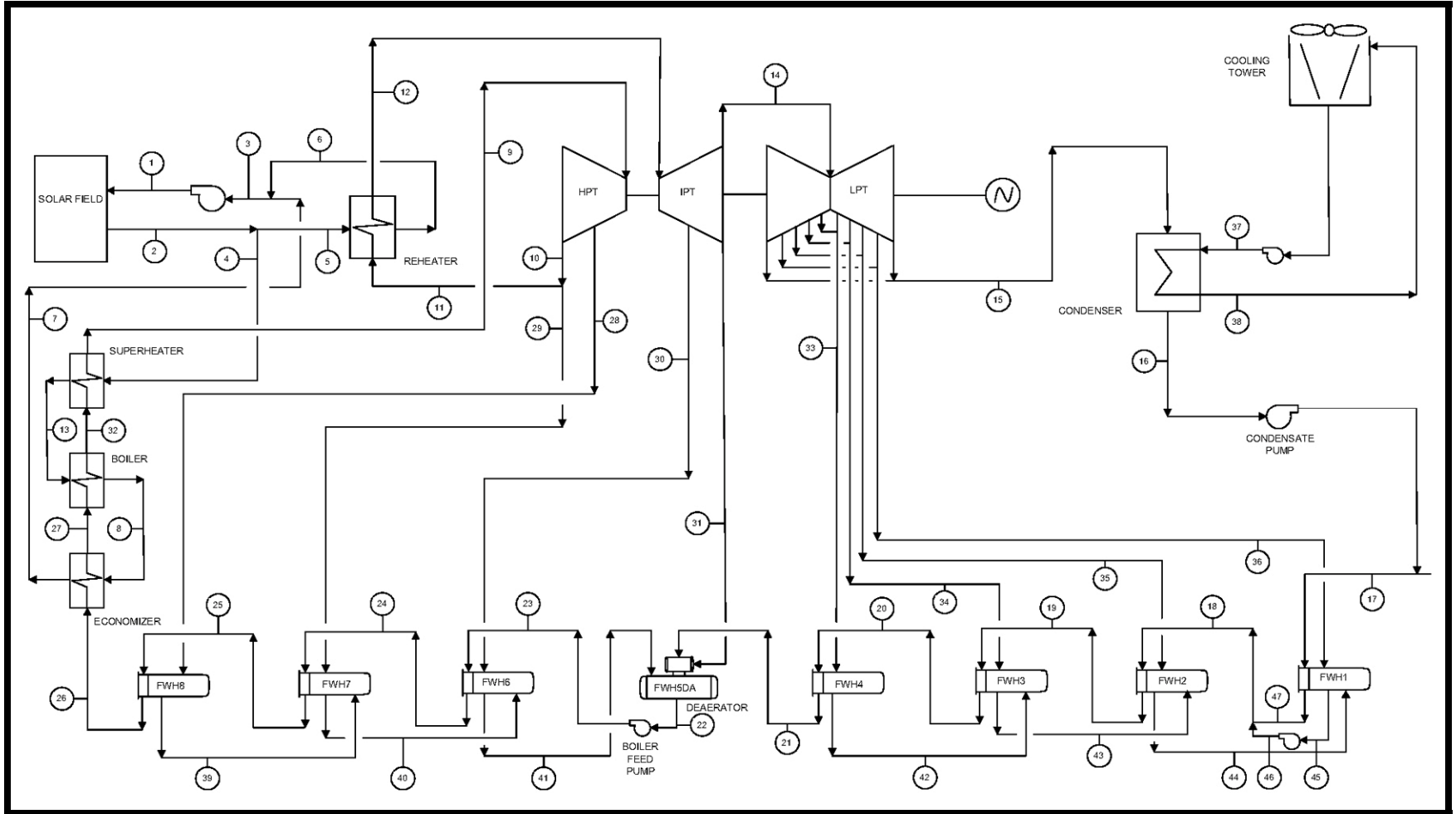


Figure 9: Heat Balance Diagram

IV. EQUIPMENT LISTING:

- A. 30-MMBtu/hr natural gas fueled boiler with low NOx burner system (**ATC No 0369001**);
- B. 30-MMBtu/hr natural gas fueled boiler with low NOx burner system (**ATC No 0369002**);
- C. Forced Draft Cooling Tower with 11 Cells and High Efficiency Drift Eliminator (**ATC No. 0369003**)
 - 1) Eleven 140-MMBtu (13,600-gpm) Cooling Tower Cells
 - 2) Eleven 250-hp Cooling Tower Fans
 - 3) Two 2,000-hp (4000-gpm) Cooling Water Pumps
 - 4) Make-Up Water Tank
 - 5) 50-hp Make-Up Water Pump
- E. Six 6000-gallon heat transfer fluid (HTF) expansion tank vented to vapor control system (including HTF piping network) (**ATC No. 0369004**);
- K. Vapor control system serving ATC Nos. 0369004 utilizing carbon adsorption system (**ATC No. 0369005**)
- L. Clarke firewater pump driven by 300-bhp John Deere Tier 3 diesel fueled piston engine (**ATC No. 0369006**); and
- M. 4-acre Bioremediation/land farming operation with enclosed treatment area for spilled HTF (**ATC No. 0369007**).

V. ENGINEERING ANALYSIS:

A. Project Description

BESP is to be a 2,012 acre facility in Kern County approximately four miles north of California City. BESP will use parabolic trough solar thermal technology to heat a heat transfer fluid (HTF) to a nominal working temperature of 740 degrees Fahrenheit (°F). Heated HTF is circulated through a heat exchanger known as a solar steam generator (SGS) to produce steam. Produced steam powers a conventional steam turbine which is used to drive an electric generator (steam turbine generator [STG]). BESP will have a nominal electrical output of 250 megawatts (MW). Solar thermal technology will provide 100 percent of the power generated by the plant.

Emissions generating support equipment for BESP are the following:

Two 30-MMBtu/hr boilers,
1.54 x 10⁻⁹ Btu/hr cooling tower,
Six HTF expansion tanks,
HTF expansion tank vapor control system utilizing carbon adsorption system,
3000-gpm fire water pump with 300-bhp engine, and
4-acre bioremediation/land farming operation.

Boilers: Two 30-MMBtu/hr boilers will be utilized to maintain HTF above freezing temperatures. Each boiler will generate steam at a rate of 20,000 pounds per hour at 150-psi and 460°F. Boilers are used to provide steam as needed for steam turbine seal system during start-up and to provide heat for the HTF freeze protection. Sealing steam is used to prevent air from entering the steam turbine during start-up while a vacuum is being

established in the condenser. Seal steam may also be required while the STG is offline, but the condenser is still under vacuum. HTF freezes at 54°F; to prevent HTF from freezing, steam from the boilers will be utilized to ensure HTF system temperature is maintained above 54°F whenever the solar unit is offline. Boilers will be equipped with ultra-low-NOx boilers capable of achieving an oxides of nitrogen as nitrogen dioxide (NOx as NO₂) emission concentration of 9-ppmv (parts per million on a volume basis) at three percent excess oxygen (3% O₂). Good combustion control will be utilized to ensure CO (carbon monoxide) and VOC (volatile organic compound) emission control. Low sulfur pipeline-quality natural gas will ensure low PM₁₀ (particulate matter with aerodynamic diameter not exceeding 10 microns) and SOx as SO₂ (oxides of sulfur as sulfur dioxide) emissions.

Cooling Tower: BESP will utilize cooling tower, to treat and reduce the temperature of the water used for SSG. Cooling tower provides cooling water to two primary cooling loops: Steam Cycle Heat Rejection System and Closed Cooling Water System. PM₁₀ emissions are minimized through use of a high efficiency drift eliminator (0.0005 percent of water circulation rate) and careful control of Total Dissolved Solids (TDS) loading in the circulating water. Water for the cooling tower is supplied from onsite groundwater supply wells. Groundwater will be treated to reduce silica levels using an ion exchange system prior to use in cooling tower. Cooling tower has a heat rejection capacity of 1.54 X 10⁹-Btu/hr, airflow of 5,496,611-lb/hr (approximately 1.3 X10⁶-cubic feet per minute{cfm}), and water circulation rate of 149,000-gallons/minute (gal/min).

Steam Cycle Heat Rejection System: Cooling system for heat rejection from the steam cycle consists of a surface condenser, circulating water system, and wet cooling tower. Surface condenser receives exhaust steam from low pressure section of STC and condenses to liquid for return to SSG. Surface condenser is shell-and-tube type heat exchanger with wet, saturated steam condensing on shell side, and circulating cooling water flowing through tubes to provide cooling. Circulation water is distributed among multiple cells of cooling tower, where it cascades downward through each cell, and then collects in the cooling tower basin. Mechanical draft cooling tower utilizes electric motor-driven fans to move air through each cooling tower cell. Cascading circulating water is partially evaporated, and evaporated water is dispersed into atmosphere. Cooled circulating water is pumped from cooling tower back to surface condenser.

Closed Cooling Water System: Closed water cooling system is filled with water conditioned to minimize scaling and corrosion. Conditioned water is pumped in a closed loop to cool equipment including STG lubrication oil cooler, STC generator cooler, steam cycle sample coolers, and additional equipment units. Cooling water absorbs heat from various equipment units being cooled, subsequently coolant is cooled by non-contact heat exchanger with branch of circulating water system from cooling tower.

HTF system the heart of the solar power plant; the system is utilized to convert solar energy to electrical energy. HTF system includes HTF, solar steam generator system, HTF piping header, HTF expansion tanks, and HTF Ullage system. HTF (heat transfer fluid) currently expected to be utilized is Solutia Therminol™ VP-1 (Therminol). Therminol is a special high-temperature synthetic oil; it an aromatic hydrocarbon with a mixture of biphenyl and diphenyl oxide.

Solar Steam Generator System: SSG system is similar in design to conventional “kettle boiler” shell-and-tube heat exchangers in that hot HTF is circulated through tubes and steam is produced on the shell side. SSG system includes heat exchangers for preheating condensate, superheating steam, reheating steam, and heating boiler vessels.

HTF Piping Header: To transport HTF throughout site, supply and return piping is routed to allow for balanced flow through all solar collectors. Expansion loops will be located throughout the plant.

HTF Expansion Tanks: HTF (like most liquids) expands when heated; therefore, to accommodate volumetric change that occurs when heating HTF to the operating temperature in solar collectors, expansion tanks are required. Six expansion tanks, with total capacity of 36,000 gallons, are provided. Expansion tanks are vented to atmosphere (through controls) upon start each morning to prevent over-pressurization of system. Vented gases contain VOC consisting of HTF and organic compounds generated by thermal degradation of HTF. Venting of HTF expansion tanks occurs for approximately two hours per day. Once HTF system achieves normal operating temperature, venting is discontinued.

Nitrogen is added to expansion tanks, through pressure (vacuum) regulator. Pressure regulator feeds nitrogen into expansion tanks to prevent a vacuum from forming in expansion tanks when HTF cools and contracts. Nitrogen is used (as opposed to air) to provide an inert blanket to prevent an explosive atmosphere from forming inside tanks.

HTF Ullage System: To maintain proper HTF physical and chemical properties, HTF is periodically routed through a series of equipment that removes breakdown products, commonly referred to as "high boilers" and "low boilers." High boilers are separated as sludge and recycled by HTF supplier. Low boilers are removed as gases and routed to the venting header.

HTF Vapor Control System: When expansion tanks or ullage system is in operation, vapors are routed through a vapor control system consisting of two carbon adsorbers in series. Carbon adsorption system will reduce VOC concentration in exhaust by 99 percent or more.

Fire Water Pump: Fire water pump driven with 300-bhp diesel fueled piston engine shall be utilized for fire emergencies. Applicant has proposed use of a Tier 3 engine as power plant for firewater pump. In accordance with CARB (California Air Resources Board) Stationary Diesel ATCM (Airborne Toxic Control Measure, section 93115, title 17) engine operation for maintenance and testing cannot exceed 50-hours per year. District requires operation emergency emission units not exceed 200-hours per year. Finally, fire pump engine must comply with the following:

- 1) CARB diesel fuel or alternative diesel fuel that has been verified for use, and
- 2) Tier 3 Non-Road Engine Certification Standard for a model year 2006 – 2010 engine between 300-bhp and 600-bhp.

Model year 2006 – 2010 engine between 300-bhp and 600-bhp have to comply with Federal Tier 3 NMHC+NO_x, CO and PM standards of 3.0, 2.6 and 0.15-g/bhp-hr (respectively). The 300-bhp engine has the following emission rates:

	NMHC+NO_x	CO	PM-10
g/bhp-hr	3.0	2.6	0.15

Bioremediation: HTF piping has large number of valves, flanges, pumps, and fittings. Because of large temperature range these components experience daily, there is significant thermal expansion and contraction of the materials. Seals expand, contract, wear, and age, and as a result, these components occasionally leak small amounts of HTF. The facility proposes use of bioremediation to reclaim soil for later use as fill onsite.

Bioremediation process has three steps; first step is bioremediation, which contaminated soils (those soils with more than 1,000 milligrams per kilogram {mg/kg} hydrocarbons) are remediated using naturally occurring bacteria. Biological activity is enhanced using water and fertilizers such as urea and monopotassium phosphate. Once contamination level drops below 1,000-mg/kg, soils are removed from bioremediation pile and transferred to land farm in second step of process. Land farm is used for “clean” soil storage; although, not specifically operated for bioremediation, additional biological activity is expected to occur. Final step in process is to use remediated soil for backfill on Project site.

Bioremediation/land farm facility will cover an area of approximately 400-feet by 800-feet. Bioremediation will be used for soils with hydrocarbon contamination concentration less than 10,000-mg/kg, and land farming for soils with concentrations below 1,000-mg/kg. Soils will be moved into and off of bioremediation pile and land farm either manually (e.g. shovels) or using a small backhoe, depending on amount of soil to be moved. Fertilizer will be added manually in pellet form.

B. Toxic Emissions Screening Health Risk Assessment:

BESP has toxic air contaminant emissions. Toxic emissions were assessed from natural gas combustion from boilers, HTF emissions (including vapor emissions, leaks and soil remediation operation), and diesel engine (fire water pump driver) emissions.

Boiler toxic emissions were based on EPA AP-42 (Tables 1.4-3 and 1.4-4, 7/98). Please note most of the emission factors are rated “D” (below average) and “E” (poor); therefore, factors are considered worst case. The following emission factors were used to calculate toxic air contaminant emissions from proposed boilers:

Pollutant	Emission Factor (lb/10⁶ scf)	Pollutant	Emission Factor (lb/10⁶ scf)
arsenic	2.00E-04	p-dichlorobenzene	1.20E-03
benz(a)anthracene	1.80E-06	formaldehyde	7.50E-02
benzene	2.10E-03	ideno(1,2,3-c,d)pyrene	1.80E-06
benzo(a)pyrene	1.20E-06	manganese	3.80E-04
benzo(b)fluoranthene	1.80E-06	mercury	2.60E-04
benzo(k)fluroanthene	1.80E-06	naphthalene	6.10E-04
cadmium	1.10E-03	nickel	2.10E-03
copper	8.50E-04	toluene	3.40E-03
dibenz(a,h)anthracene	1.20E-06		

Emission factor was converted from pounds per million standard cubic feet (lb/10⁶ scf) to pounds per million British Thermal Units (lb/MMBtu) by utilizing the higher heating value of natural gas of 1050-Btu/scf. Toxic emissions were calculated two boilers rated at 30-MMBtu/hr. Emission factors rated in lb/MMBtu and resultant toxic emissions are listed below:

Pollutant	Emission Factor (lb/MMBtu)	Toxic Emissions (lb/hr) (lb/year)	
arsenic	1.90E-07	1.14E-05	0.0114
benz(a)anthracene	1.71E-09	1.03E-07	0.0001
benzene	2.00E-06	1.20E-04	0.1200

Pollutant	Emission Factor (lb/MMBtu)	Toxic Emissions	
		(lb/hr)	(lb/year)
benzo(a)pyrene	1.14E-09	6.86E-08	0.0001
benzo(b)fluoranthene	1.71E-09	1.03E-07	0.0001
benzo(k)fluroanthene	1.71E-09	1.03E-07	0.0001
cadmium	1.05E-06	6.29E-05	0.0629
copper	8.10E-07	4.86E-05	0.0486
dibenz(a,h)anthracene	1.14E-09	6.86E-08	0.0001
p-dichlorobenzene	1.14E-06	6.86E-05	0.0686
formaldehyde	7.14E-05	4.29E-03	4.2857
ideno(1,2,3-c,d)pyrene	1.71E-09	1.03E-07	0.0001
manganese	3.62E-07	2.17E-05	0.0217
mercury	2.48E-07	1.49E-05	0.0149
naphthalene	5.81E-07	3.49E-05	0.0349
nickel	2.00E-06	1.20E-04	0.1200
toluene	3.24E-06	1.94E-04	0.1943

HTF is a compound containing 26.5% biphenyl and 73.5% diphenyl ether. Biphenyl and diphenyl ether are both compounds in which two benzene rings are connected to each other. Studies have been performed to showing conversion of biphenyl and diphenyl ether into benzene. Applicant assessed 99% of HTF vapor emissions from expansion tanks as benzene emissions; therefore, 99% of calculated emissions from expansion tanks will be assessed as benzene emission, as shown below:

HTF Toxic Emissions:

Pollutant	HTF Emissions			Toxic Emissions	
	(lb/hr)	(tons/yr)	(lb/year)	(lb/hr)	(lb/year)
benzene	0.63	0.23	456.71	0.62	452.14

Diesel engine (fire water pump driver) emissions were calculated based on maximum emergency stand-by emissions of 200-hours/year. Toxic emission were calculated based on emission factors based on uncontrolled diesel fuel combustion of the 300-bhp engine (worst case emissions), CARB VOC speciation profiles, and certified diesel PM emissions.

Diesel Exhaust Toxic Components

Fuel Flow	14.5	gal/hr
#2 Diesel	19,111	Btu/lb
Density	57.4	lb/cu.ft.
Vol. Conv.	7.4805	gal/cu.ft.
Fuel Flow	111.263	lb/hr
Fuel Flow	2.126	MMBtu/hr
Yearly Use	200.0	hrs/yr

Maximum toxic air contaminant emissions based of CARB VOC speciation profiles and maximum operation condition are summarized below.

Pollutant	lb/MMBtu	lb/hr	lb/yr
Acetaldehyde	7.67E-04	1.631E-03	0.326181
Acrolein	9.25E-05	1.967E-04	0.039337

Pollutant	lb/MMBtu	lb/hr	lb/yr
Benzene	9.33E-04	1.984E-03	0.396775
1,3-Butadiene	3.91E-05	8.314E-05	0.016628
Diesel Particulate		9.923E-02	19.845000
Formaldehyde	1.18E-03	2.509E-03	0.501816
Naphthalene	8.48E-05	1.803E-04	0.036063
<u>POLYCYCLIC AROMATIC HYDROCARBONS (PAH)</u>			
Benz(a)anthracene	1.68E-06	3.572E-06	0.000714
Benzo(b)fluoranthene	9.91E-08	2.107E-07	0.000042
Benzo(k)fluoranthene	1.55E-07	3.296E-07	0.000066
Benzo(a)pyrene	1.88E-07	3.998E-07	0.000080
Dibenz(a,h)anthracene	5.83E-07	1.240E-06	0.000248
Ideno(1,2,3-cd)pyrene	3.75E-07	7.974E-07	0.000159
<u>TOTAL PAH</u>	3.08E-06	6.549E-06	0.001310
Toluene	4.09E-04	8.697E-04	0.173935
Xylenes	2.85E-04	6.060E-04	0.121201

A screening health risk assessment for the facility based on proposed toxic air contaminant emissions was completed. Summary of toxic air contaminants are summarized below:

TOXICS SUMMARY

Pollutant	lb/hr	lb/yr
Acetaldehyde	0.0016309	0.0016309
Acrolein	0.03933729	0.0001967
Arsenic	1.1429E-05	0.0114286
Benzene	452.53726	0.7413542
1,3-Butadiene	0.01662798	8.314E-05
Cadmium	6.2857E-05	0.0628571
Copper	4.8571E-05	0.0485714
p-Dichlorobenzene	6.8571E-05	0.0685714
Formaldehyde	0.50610192	4.2882234
Manganese & compounds	2.1714E-05	0.0217143
Mercury & compounds	1.4857E-05	0.0148571
Naphthalene	0.03609758	0.0350375
Nickel & Nickel Compounds (0.1 for nickel oxide chronic)	0.00012	0.12
Particulate frm Diesel Eng.	19.845	0.099225
PAH's		
-Benz[a]anthracene	0.00071455	0.0001064
-Benzo[b]fluoranthene	4.2247E-05	0.0001031
-Benzo[k]fluoranthene	6.6019E-05	0.0001032
-Benzo[a]pyrene	8.0019E-05	6.897E-05
-Dibenz[a,h]anthracene	0.000248	6.981E-05
-Indeno[1,2,3-cd]pyrene	0.00015958	0.0001037
Toluene	0.17412889	0.1951554
Xylenes (o, m, p)	0.12120137	0.000606

Initially, a "Prioritization Score" is obtained to determine if a more refined screening risk assessment will be required. The prioritization score was based on toxic air contaminants listed above, and the nearest receptor exceeding 1000 meters (see Figure 11 below). Prioritization for the solar power plant is as follows:

PRIORITIZATION SCORE

Proximity Factors (Meters)		Carcinogenic Scores	Non-Carcinogenic Scores	Facility Ranking
250 < R < 500	0.040	1.29770	4.53549	Medium Priority
500 < R < 1000	0.011	0.35687	1.24726	Medium Priority
1000 < R < 1500	0.003	0.09733	0.34016	Low Priority

Based on above carcinogenic and non-carcinogenic scores (see Attachment A for details), carcinogenic and non-carcinogenic health risk from solar power plant is insignificant. Therefore, a more refined risk assessment is not required.

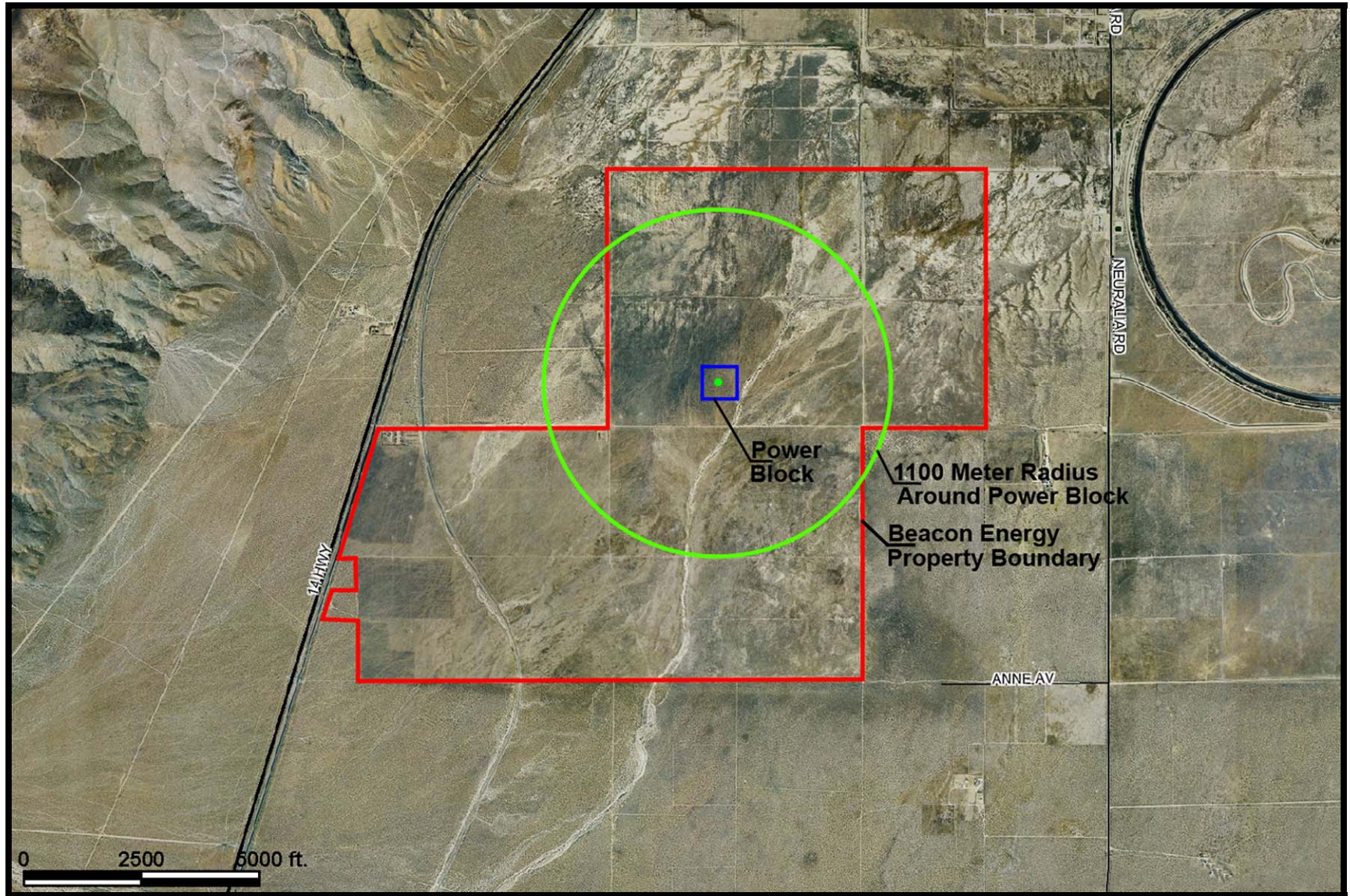


Figure 11: Beacon Solar Energy Project and Nearby Receptors

C. Offset Requirements

Proposed emissions do not exceed 15 tons/yr of PM₁₀, 27 tons/yr of SO_x, 25 tons/yr of NO_x, or 25 tons/yr of VOC. Therefore offsets are not required.

VI. **BACT DETERMINATION:**

BACT is required for the solar power plant in accordance with District Rule 210.1, Section III.A.1. Specifically, BACT is required for the Heat Transfer Fluid (HTF) Piping Network, two 30.0-MMBtu/hr Boilers, Forced Draft Cooling Tower, HTF Storage and Expansion Operation, 300-Bhp Diesel Fueled Piston Engine driving Firewater Pump, and Hydrocarbon Bio-remediation Operation.

A. Heat Transfer Fluid (HTF) Piping Network (Included on ATC No. 0369004)

BACT for the Heat Transfer Fluid (HTF) Piping Network are the following:

<u>ATC Description</u>	<u>BACT</u>
6000-gallon heat transfer fluid (HTF) expansion tank vented to vapor control system (including HTF piping network)	VOC: 1) I&M Program Leaks not to exceed 100 ppmv for all components

These provisions are also accepted as achieved in practice BACT and will be incorporated into BACT requirement for this operation.

B. BACT for each 30.0-MMBtu/hr Boiler (ATC No. 0369001 and 0369002)

BACT is required for each boiler in accordance with District Rule 210.1, Section III.A. Fuel for each unit is PUC quality natural gas. Therefore, BACT is the following:

<u>Pollutant</u>	<u>Control</u>
PM-10:	PUC quality natural gas
SO_x:	PUC quality natural gas
NO_x:	Low NO _x burners with emission concentration of 15 ppmvd
VOC:	PUC quality natural gas
CO:	Not required

These provisions are also accepted as achieved in practice BACT and will be incorporated into BACT requirement for this operation. Applicant has proposed the following:

1. Use of PUC quality natural gas.
2. Low NO_x burners with exhaust emission concentration of 9-ppmv
3. CO exhaust emission concentration of 50-ppmv

C. BACT for Cooling Tower (ATC No. 0369003)

BACT is required for the cooling tower in accordance with District Rule 210.1, Section III.A. Therefore, utilizing San Joaquin Valley Air Pollution Control District (SJVAPCD) BACT Policy), BACT is the following:

<u>Pollutant</u>	<u>Control</u>
PM-10:	Drift rate not to exceed 0.0005%
VOC:	Hydrocarbon detection device and repair of leaks within 15 days of detection
SO_x, NO_x, and CO:	Not Required

Cooling Tower as proposed complies with the above requirements.

- D. BACT for HTF Storage and Expansion Operation (ATC Nos. 0369004 and 0369005)
 BACT is required for HTF storage and expansion operations in accordance with District Rule 210.1, Section III.A. Unit 0369004 exhaust to 0369005 (carbon adsorption system); therefore, BACT for ATC No. 0369004 is ATC No 0369005 (BACT is not required for control equipment). BACT is the following:

Pollutant	Control
VOC:	Vapor control system. Applicant has proposed use of carbon adsorption for vapor control.
PM₁₀, SOx, NOx, and CO:	Not Required

Carbon adsorption is accepted as achieved in practice BACT and will be incorporated into BACT requirement for this operation.

- E. BACT for 300-bhp Diesel Fueled Engine Driving Firewater Pump (ATC No. 0369006)
 BACT is required for the 300-bhp diesel fueled engine driving firewater pump in accordance with District Rule 210.1, Section III.A. In accordance with District's Piston Engine BACT policy, BACT is the following:

Pollutant	Control Technology
PM₁₀	<ul style="list-style-type: none"> Visible emissions no greater than Ringelmann ¼ or 5% opacity once normal operating temperature is achieved.
SOx	<ul style="list-style-type: none"> Fuel satisfying CARB reformulated diesel specifications
NOx	<ul style="list-style-type: none"> NOx emissions not to exceed 5.8 g/bhp-hr (manufacturer's rating is 2.8-g/bhp-hr for 300-bhp {Tier 3 NMHC + NOx not to exceed 3.0-g/bhp-hr} engine)
VOC	<ul style="list-style-type: none"> Crankcase ventilation exhausting to engine air inlet, or 90% efficient control device for crankcase VOC emissions
CO	<ul style="list-style-type: none"> Not required

Applicant proposed a Tier 3 engine driving the firewater pump. Proposed Tier 3 engine complies with the above requirements.

- F. BACT for Bio-Remediation Operation (ATC No. 0369007)
 Emissions from ATC No. 0369004 (HTF fluid piping network – liquid leaks) can be treated by bio-remediation. Therefore, ATC No 0369007 is control equipment for ATC No. 0369004 (BACT is not required for control equipment).

VII. CEQA DETERMINATION:

KERN COUNTY APCD PERMITS - CEQA COMPLIANCE **Instructions for Checklist**

This form is designed to be used by the permit application processing engineer in implementing requirements of the California Environmental Quality Act (CEQA) for District permitting activities when the District is the lead or responsible agency under CEQA. The District is generally a responsible agency for portions of development projects requiring District permits. The District is a commenting agency for other parts of a project, such as, indirect source emissions and vehicle trips. Most District permits are considered exempt from CEQA (see District List of Exempt Projects). In most cases the environmental document prepared by the lead agency is adequate for the District permitting action. Certain District permit modifications may require supplemental CEQA documents.

CEQA compliance for a project subject to District permit requirements includes two steps:

- A. Determining what CEQA-related information, if any, is required from the applicant to deem the application complete (this may also be identified at the pre-application stage, if there is one¹).
- B. Determining and documenting CEQA compliance for each permit application prior to granting a permit by completing the attached form.

The following instructions correspond to the questions on the form:

- B.2. Projects subject to District permits often also require a land use or other permit from other agencies. The permit engineer should check the application or request from the applicant information regarding what other agencies will be requiring permits for the project and who the "Lead Agency" will be. District permit processing should begin as soon as adequate information is available to deem the application complete, even if the lead agency has not completed the environmental document (Govt. Code ' 65941 (b), amended 1993), and if the applicant so requests (Govt. Code ' 65951, amended 1993).
- B.3. For District permits that do not fall under the preceding case, the engineer shall receive from the applicant a signed and dated environmental questionnaire (Initial Study checklist).
- C.2. As a "responsible agency" under CEQA, the Control Officer shall consider information contained in the lead agency's final EIR or ND prior to granting the District permit. Acting on behalf of the Control Officer, the engineer shall review the ND or EIR and adopt any mitigation measures for air quality impacts or project alternatives over which the District has regulatory discretion.
- C.3. If any component of the project is not listed, and if exceptions to these exemptions provided in the form are true, then the project cannot be considered exempt. In making a recommendation to issue the District permit, the permit engineer shall review the environmental questionnaire provided by the applicant to establish the project has no potential for resulting in a significant adverse environmental impact to any environmental media (see Initial Study form). The study shall also demonstrate the project will not contribute to significant cumulative impacts and will not have significant impact itself. Although no further action is required under CEQA, the applicant may request a Notice of Exemption to be filed, to reduce the statute of limitations from 180 days to 30 days, on challenges to the decision the project is exempt from CEQA.

¹ *Preapplication under PRC ' 21080.1(b) amended 1993-at the request of the applicant the lead agency must provide for pre-application consultation on the environmental document.*

KERN COUNTY APCD PERMITS -- CEQA COMPLIANCE CHECKLIST

Completeness Review Form

This form shall be completed by the permit application engineer for all Authority to Construct permit applications. The completed form shall be included in the Engineering Evaluation File.

A. General Information

Application Number: 0369001 – '007
Applicant Name: Beacon Solar, LLC
Project Description: Support Emissions Units Serving Solar Power Plant

B. Determination of Completeness

Check the corresponding action to be taken to determine the application is complete for CEQA purposes and fill in blanks where appropriate.

1. Ministerial Exemption

This permit application is not subject to CEQA because the evaluation is a ministerial action conducted using fixed standards and objective measurements. No discretion or judgment is required in granting of this permit.

2. Project Was Exempted by or is Subject to Negative Declaration or EIR by Another Agency

This permit application was exempted by or is subject to a ND or EIR prepared (or under preparation) by another agency. The District has received the necessary information indicating another agency is acting as the Lead Agency. Therefore, the application shall be deemed complete for CEQA purposes.

3. All Other Permits

The District has received from the applicant, a completed, signed and dated environmental questionnaire and any other information necessary for preparing a negative declaration or EIR, if required (see Form Instructions B.3.). Therefore, the application shall be deemed complete for CEQA purposes.

C. Final Action

Check the appropriate action taken by the APCO prior to issuing the final permit.

1. Ministerial Action

This permit application is exempt from CEQA because the permit evaluation is a ministerial action. CEQA does not apply to ministerial actions. No further action is necessary.

2. Project Was Exempted by or is Subject to Negative Declaration or EIR by Another Agency

This permit application was exempted by or was subject to an EIR or Negative Declaration by another agency. The final action on the District permit was taken only after review and consideration of information in the certified CEQA document by the Control Officer, or authorized District representative of the Control Officer.

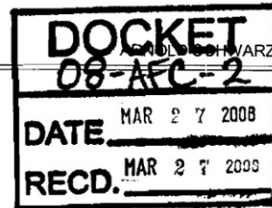
3. Exemption

This permit application is exempt from CEQA because the project, as a whole, is listed in the District List of Exempt Projects AND because the project has no potential for causing a significant adverse environmental impact. A General Exemption under CEQA Section 15061 (b)(3) applies if the project is not listed in the District Exemption List AND it can be seen with certainty the project will not have a significant adverse effect on the environment. In making this determination,

- a. a review of information submitted by the applicant has been conducted indicating there is no potential for a significant adverse environmental impact on any environmental media from the project;
- b. emissions offsets were not required by KCAPCD Rule 210.1, Subsection III.B.;
- c. recognized Best Available Control Technology (BACT) was proposed; and
- d. no unusual circumstances such as location, or cumulative impacts from successive projects of the same type in the same place over time, were determined to result in significant adverse environmental impacts.

4. Permit is Not Exempt from CEQA

This permit was found not to be exempt from CEQA and no other agency will be conducting a CEQA review for the project. The District has prepared and adopted a Negative Declaration/Addendum or certified an EIR for the project. The final action by the District was taken only after information contained in the final EIR or ND was considered and any significant adverse environmental effects were mitigated to the maximum extent feasible.

**CALIFORNIA ENERGY COMMISSION**

1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov



**NOTICE OF RECEIPT
OF AN APPLICATION FOR CERTIFICATION
FOR THE BEACON SOLAR ENERGY PROJECT (08-AFC-2)**

On March 14, 2008, the California Energy Commission received an Application for Certification (AFC) from Beacon Solar, LLC (Beacon Solar), a subsidiary of Florida Power & Light Energy, LLC (FPL). The proposed project is a concentrated solar electric generating facility proposed on an approximately 2,012-acre site in eastern Kern County, California. The project would use established parabolic trough solar thermal technology to produce electrical power using a steam turbine generator fed from a solar steam generator. The solar steam generator receives heated heat transfer fluid from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun. The project would have a nominal electrical output of 250 megawatts (MW).

Project Description

Beacon Solar's primary objective for the proposed project is to construct, operate and maintain an efficient, economic, reliable, safe and environmentally-sound solar powered generating facility. The facility is intended to help meet the State of California objectives mandated by SB 1078 (California Renewable Portfolio Standard Program); AB 32 (California Global Warming Solutions Act of 2006); and other local mandates adopted by the State's municipal electric utilities for the long term wholesale purchase of renewable electric energy for distribution to their customers.

The project site is located in eastern Kern County at the western edge of the Mojave Desert. The project site is located along the California State Route (SR)-14 corridor, approximately four miles north-northwest of the northern boundary of California City, approximately 15 miles north of the Town of Mojave, approximately 17 miles north of Edwards Air Force Base, and approximately 24 miles northeast of the City of Tehachapi. Koehn Lake (usually dry) is located approximately five miles to the east-northeast, and Red Rock Canyon State Park is located approximately four miles to the north.

The project would use a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, and other industrial uses such as mirror washing, would be supplied from onsite groundwater wells, which also would be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). A package water treatment system would be used to treat the groundwater to meet potable standards for employee use and a septic system and onsite leach field would be used to dispose of sanitary wastewater.

It is estimated that the project would use approximately 1,600 acre feet per year of groundwater. According to pumping test data provided in the AFC, groundwater supply wells on the plant site have sufficient capacity (at least 2,000 gallons per minute) to meet the project's water supply requirements. According to the AFC, the project's

groundwater usage would slow down (by less than 20 percent) the rate of groundwater level recovery in the area over recent years that has resulted from the cessation of agricultural activities on and around the project site.

The project's solar thermal technology would provide 100 percent of the power generated by the plant; no supplementary energy source (e.g., natural gas combustion to generate electricity) is proposed. The project would utilize two auxiliary boilers fueled by natural gas to reduce startup time and to keep the temperature of the heat transfer fluid above its relatively high freezing point (54 degrees Fahrenheit (°F)). To provide fuel to the boilers, a new 17.6-mile, eight-inch gas pipeline will be constructed (entirely within already-disturbed rights of way) to connect the project to an existing Southern California Gas Company pipeline west of California City.

Beacon Solar has filed an electrical interconnection request for the project with the Los Angeles Department of Water and Power (LADWP). LADWP's 230 kilovolt (kV) Barren Ridge Switching Station is located across California State Route 14 (SR-14) approximately 1.5 miles southwest of the project site. Beacon Solar is seeking approval of the following two similar options for interconnecting the project to LADWP's transmission system, only one of which would eventually be built:

Option 1: Construction of a new, approximately 3.5-mile 230 kV transmission line (approximately 1.6 miles within the 2,012-acre plant site boundary), that would run west from the power block across SR-14 and south across private property to the Barren Ridge Switching Station.

Option 2: Construction of a new, approximately 2.3-mile 230 kV transmission line (approximately 1.6 miles within the plant site boundary), that would run west across SR-14 to a new project switching station to be constructed at the location where the project's transmission line first meets LADWP's existing transmission right-of-way (ROW). A second, 230 kV transmission line slightly over one mile long would then be constructed east of and adjacent to the existing Los Angeles Department of Water and Power ROW from the new project switching station down to the Barren Ridge Switching Station.

Both options are being pursued at this time because a final route cannot be selected until the System Impact Study and Facilities Study are completed by LADWP, a more detailed design is completed, and the associated transmission line route easements are secured for the option selected.

If approved, Beacon Solar plans to begin project construction in the third quarter of 2009 and take approximately 25 months for project completion. Commercial operation is planned for the third quarter of 2011.

Energy Commission's Facility Certification Process

The Energy Commission is responsible for reviewing and ultimately approving or denying all applications to construct and operate thermal electric power plants, 50 MW and greater, in California. The Energy Commission's facility certification process carefully examines public health and safety, environmental impacts, and engineering aspects of proposed power plants and all related facilities, such as electric transmission lines and natural gas and water pipelines. The Energy Commission is the lead agency under the California Environmental Quality Act (CEQA), but it produces several environmental and decision documents rather than an Environmental Impact Report.

As part of our review process, the staff of the Energy Commission works closely with local, state and federal agencies to ensure that all laws, ordinances, regulations and standards are addressed in the final decision of the California Energy Commission. The first step in the review process is for Energy Commission staff to determine whether or not the AFC contains all the information required by our regulations. When the AFC is deemed data adequate, we will begin the data discovery and issue analysis phases. At that time, a detailed examination of the issues will occur.

Public Participation

Over the coming months, the Energy Commission will conduct a number of public workshops and hearings to determine whether the proposed project should be approved for construction and operation and under what set of conditions. The workshops will provide the public as well as local, state and federal agencies the opportunity to participate in reviewing the proposed project. The Energy Commission will issue notices for these workshops and hearings at least 10 days prior to the meeting.

Please direct your technical or project schedule questions to Bill Pfanner, Energy Commission Project Manager, at (916) 654-4206, or by email at bpfanner@energy.state.ca.us. If you desire information on participating in the Energy Commission's review of the proposed project, please contact the Energy Commission's Public Adviser's Office, at (916) 654-4489, or toll free in California at (800) 822-6228, or by email at pao@energy.state.ca.us. If you require special accommodations, please contact Lourdes Quiroz at (916) 654-5146. News media inquiries should be directed to (916) 654-4989, or by email at mediaoffice@energy.state.ca.us. The status of the proposed project, copies of notices, an electronic version of the AFC, and other relevant documents are also available on the Energy Commission's Internet web site at: <http://www.energy.ca.gov/sitingcases/beacon>. You can also subscribe to receive email notification of all notices at <http://www.energy.ca.gov/listservers>.

This notice of receipt has been mailed to all parties that requested placement on the mailing list during the pre-filing period and to property owners located within 1000 feet of the proposed project site or 500 feet of any linear facilities. By being on the mailing list, you will receive notices of all project-related activities and notices when documents related to the proposed project's evaluation are available for review. If you want your

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name removed from the mailing list, please contact April Esau, Project Secretary, at (916) 653-1640, or by email at aesau@energy.state.ca.us.

Availability of the AFC Document

Copies of the AFC are available for public inspection at the following libraries in Kern County:

**Kern County Library
California City Branch
9507 California City Blvd.
California City, CA 93505**

**Kern County Library
Mojave Branch
16916 ½ Highway 14, Space D2
Mojave, CA 93501**

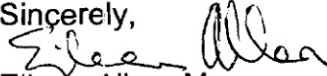
**Kern County Library
Wanda Kirk Branch
3611 Rosamond Blvd.
Rosamond, CA 93560**

**Kern County Library
Ridgecrest Branch
131 East Las Flores Ave.
Ridgecrest, CA 93555**

**Kern County Library
Tehachapi Branco
1001 West Tehachapi Blvd.
Suite A-400
Tehachapi, CA 93561**

Copies are also available at the Energy Commission's Library in Sacramento, the California State Library in Sacramento, and at public libraries in Eureka, San Francisco, Fresno, Los Angeles, and San Diego. In addition, copies will be distributed to those public agencies that would normally have jurisdiction except for the Energy Commission's exclusive authority to certify sites and related facilities.

Date: 3/27/08

Sincerely,

Eileen Allen, Manager
Energy Facilities Siting and Compliance Office

Negative Declaration or EIR by Another Agency

PENDING

VIII. EMISSION CALCULATIONS:

A Assumptions:

1. 0.26-lb/ft³ -- from properties chart
2. Operation: Boiler: 14-hr/day, 365-days/year
 Solar Plant: 16-hr/day, 365-days/year
3. 0.2642 gal/l
4. 2.2046 lb/kg
5. Each Boiler Rating: 30.0-MMBtu/hr

B. Emission Factors:

1. Natural Gas Boiler

F (@68):	8727	dscf/MMBtu	
	F(@60) = F(@68) x	0.985	
F(@60):	8596.0000	dscf/MMBtu	
%O ₂ :	3.0000	%	
SV:	379.6	ft ³ /lb-mole	(specific molecular volume)
MW NO _x :	46.0000	lb/lb-mole	
MW CO:	28.0100	lb/lb-mole	
NO _x :	9.0000	ppmv	
CO:	50.0000	ppmv	(applicant proposed)
$\frac{lb}{MMBtu} = \frac{ppm \times MW \times F}{SV \times 10^6} \times \frac{20.9}{20.9 - \%O_2}$			

	Calculated Emission Factor	Emission Factor Used
NO _x :	0.0110 lb/MMBtu	0.011 lb/MMBtu
CO:	0.0370 lb/MMBtu	0.037 lb/MMBtu

Emission Factors (AP-42, except NO_x and CO – BACT and Applicant Proposed)

	PM ₁₀	SO _x	NO _x	VOC	CO
lb/MMBtu:	0.0072	0.0006	0.011	0.0052	0.0370

2. Cooling Water System

- Drift Eliminator Control: 0.0005% of cooling water circulation flow rate (guaranteed by cooling tower vendor)
- Cooling water TDS: 1600 mg/liter TDS (total dissolved solids)
- 0.01335 lb/gal
- Cooling Water Flow Rate: 149,000.0 gal/min

3. Estimated Emissions from Component Count:

Equipment Type	Service	Sampling	(lb/hr/source)
Valves	Light Liquid	100 ppmv	0.00025169
Pump Seals	Light Liquid	100 ppmv	0.0008448
Connectors	Light Liquid	Default Zero	0.0000165
Pressure Relief Valve	Gas	<10,000 pmv	0.098546
Open-ended Lines	Light Liquid	<10,000 pmv	0.003307

4. 300-bhp Diesel Piston Engine Driving Firewater Pump

Max. Horsepower	300
Max. daily use, hrs	24
Max weeks use, weeks	52
Max. annual use, hrs	200.0
Fuel use	14.5 gal/hr
	111.26 lb/hr
Sulfur content	0.0015 %

	<u>PM-10</u>	<u>SOx</u>	<u>NOx</u>	<u>VOC</u>	<u>CO</u>
gm/hp-hr	0.150	0.005	2.800	0.200	2.600

SOx:

$$111.26 \frac{lb(fuel)}{hr} \times \frac{0.0015(S - fuel \cdot content)}{100} \times 453.59 \frac{gm}{lb} \times 2 \left(\frac{SO_2}{S} \right) = 1.51 \frac{gm \cdot SOx}{hr}$$

$$1.51 \frac{gm \cdot SOx}{hr} \times \frac{1}{300} \frac{1}{hp} = 0.005 \frac{gm \cdot SOx}{hp - hr}$$

$$0.005 \frac{gm \cdot SOx}{hp - hr} \times \frac{1}{453.59} \frac{lb}{gm} = 1.11 \times 10^{-5} \frac{lb \cdot SOx}{hp - hr}$$

$$PM_{10}: 0.15 \frac{gm \cdot PM_{10}}{hp - hr} \times \frac{1}{453.59} \frac{lb}{gm} = 3.31 \times 10^{-4} \frac{lb \cdot PM_{10}}{hp - hr}$$

$$NOx: 2.8 \frac{gm \cdot NOx}{hp - hr} \times \frac{1}{453.59} \frac{lb}{gm} = 6.17 \times 10^{-3} \frac{lb \cdot NOx}{hp - hr}$$

$$VOC: 0.2 \frac{gm \cdot VOC}{hp - hr} \times \frac{1}{453.59} \frac{lb}{gm} = 4.41 \times 10^{-4} \frac{lb \cdot VOC}{hp - hr}$$

$$CO: 2.6 \frac{gm \cdot CO}{hp - hr} \times \frac{1}{453.59} \frac{lb}{gm} = 5.73 \times 10^{-3} \frac{lb \cdot CO}{hp - hr}$$

	PM-10	SOx	NOx	VOC	CO
lb/hp-hr	3.31E-04	1.11E-05	6.17E-03	4.41E-04	5.73E-03

C. Emissions Calculations:

1. **ATC Nos. 0369001 and 0369002 (Boilers):**

Example Emission Calculations for PM₁₀ (Identical Calculations for SOx, NOx, VOC and CO, results are summarized below):

	PM₁₀	SOx	NOx	VOC	CO
lb/MMBtu:	0.0072	0.0006	0.011	0.0052	0.0370

$$\text{Hourly: } 0.0072 \frac{\text{lb}}{\text{MMBtu}} \times 30.0 \frac{\text{MMBtu}}{\text{hr}} = 0.217 \frac{\text{lb}}{\text{hr}}$$

$$\text{Daily: } 0.217 \frac{\text{lb}}{\text{hr}} \times 14 \frac{\text{hr}}{\text{day}} = 3.04 \frac{\text{lb}}{\text{day}}$$

$$\text{Annual: } 0.217 \frac{\text{lb}}{\text{hr}} \times 1000 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ tons}}{2000 \text{ lb}} = 0.11 \frac{\text{tons}}{\text{year}}$$

ATC No. 0369001 (Boiler) Emissions Summary:

	PM₁₀	SOx	NOx	VOC	CO
lb/hr:	0.217	0.017	0.330	0.157	1.110
lb/day:	3.04	0.24	4.62	2.20	15.54
tons/yr:	0.11	0.01	0.17	0.08	0.56

ATC No. 0369002 (Boiler) Emissions Summary:

	PM₁₀	SOx	NOx	VOC	CO
lb/hr:	0.217	0.017	0.330	0.157	1.110
lb/day:	3.04	0.24	4.62	2.20	15.54
tons/yr:	0.11	0.01	0.17	0.08	0.56

2. ATC No. 0369003 (Cooling Water System):

PM₁₀ Drift Emissions:

$$PM_{10} \left(\frac{\text{lb}}{\text{hr}} \right) = \text{FlowRate} \left(\frac{\text{gal}}{\text{min}} \right) \times \text{TDS} \left(\frac{\text{lb}}{\text{gal}} \right) \times \frac{\text{DriftControl}\%}{100} \times 60 \frac{\text{min}}{\text{hr}}$$

where:

Cooling Water Flow Rate: 149,000.0 gal/min
TDS: 0.01335 lb/gal
Drift Eliminator Control: 0.0005 %

$$149,000 \frac{\text{gal}}{\text{min}} \times 0.01335 \frac{\text{lb}}{\text{gal}} \times \frac{0.0005}{100} \times 60 \frac{\text{min}}{\text{hr}} = 0.597 \frac{\text{lb}}{\text{hr}}$$

$$\text{Daily: } 0.597 \frac{\text{lb}}{\text{hr}} \times 16 \frac{\text{hr}}{\text{day}} = 9.55 \frac{\text{lb}}{\text{day}}$$

$$\text{Annual: } 0.597 \frac{\text{lb}}{\text{hr}} \times 5840 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ tons}}{2000 \text{ lb}} = 1.74 \frac{\text{tons}}{\text{year}}$$

ATC No. 0369003 (Cooling Water Tower) Emissions Summary:

	PM₁₀	SOx	NOx	VOC	CO
lb/hr:	0.60				
lb/day:	9.55				
tons/yr:	1.74				

3. ATC No. 0369004 (HTF Expansion Tanks and Fugitive Emissions):

Equipment Type	Service	Count	Sampling	(lb/hr/source)
Valves	Light Liquid	3050	100 ppmv	0.0002517
Pump Seals	Light Liquid	4	100 ppmv	0.0008448
Connectors	Light Liquid	7550	Default Zero	0.0000165
Pressure Relief Valve	Gas	6	<10,000 pmv	0.098546
Open-ended Lines	Light Liquid	44	<10,000 pmv	0.003307

Equipment Type	Equipment Use (hrs/day)
Valves	16
Pump Seals	16
Connectors	16
Pressure Relief Valve	8
Open-ended Lines	16

Fugitive Emissions:

a. Valves:

$$\text{Hourly Emissions: } 3050 - \text{valves} \times 0.0002517 \frac{\text{lb}}{\text{hr} \cdot \text{valve}} \times = 0.768 \frac{\text{lb}}{\text{hr}}$$

b. Pump Seals:

$$\text{Hourly Emissions: } 4 - \text{seals} \times 0.0008448 \frac{\text{lb}}{\text{hr} \cdot \text{pump} \cdot \text{seal}} \times = 0.003 \frac{\text{lb}}{\text{hr}}$$

c. Connectors:

$$\text{Hourly Emissions: } 7550 - \text{connectors} \times 0.0000165 \frac{\text{lb}}{\text{hr} \cdot \text{connector}} \times = 0.125 \frac{\text{lb}}{\text{hr}}$$

d. Pressure Relief Valves:

$$\text{Hourly Emissions: } 6 - \text{PRvalves} \times 0.098546 \frac{\text{lb}}{\text{hr} \cdot \text{PRvalve}} \times = 0.591 \frac{\text{lb}}{\text{hr}}$$

e. Open-ended Lines:

$$\text{Hourly Emissions: } 44 - \text{OE} \cdot \text{Lines} \times 0.003307 \frac{\text{lb}}{\text{hr} \cdot \text{line}} \times = 0.146 \frac{\text{lb}}{\text{hr}}$$

f. Hourly Emissions Total:

Equipment Type	Service	Hourly Emissions (lb/hr)
Valves	Light Liquid	0.768
Pump Seals	Light Liquid	0.003
Connectors	Light Liquid	0.125
Pressure Relief Valve	Gas	0.591
Open-ended Lines	Light Liquid	0.146
Total:		1.632

g. Daily Emissions:

Equipment Type	hrs/day	Daily Emissions (lb/day)
Valves	16	12.2822
Pump Seals	16	0.0541
Connectors	16	1.9932
Pressure Relief Valve	8	4.7302
Open-ended Lines	16	2.3281
Total:		21.3878

h. Annual Emissions and Emissions Summary:

$$21.388 \frac{lb}{hr} \times 365 \frac{day}{year} \times \frac{1}{2000} \frac{ton}{lb} = 3.90 \frac{ton}{year}$$

ATC No. 0369004 (Solar Field and Expansion Tanks Fugitive Emissions) Emissions Summary:

	PM ₁₀	SO _x	NO _x	VOC	CO
lb/hr:				1.63	
lb/day:				21.39	
tons/yr:				3.90	

4. ATC No. 0369005 (Vapor Control System – Carbon Canisters):

Operating Temperatures (deg F)	High	Low	2/3 Maximum
	740	55	511.66666
Vapor Density @ Median:	0.26	lb/ft ³	-- from properties chart
Expansion Tank Volume:	36000	gal	
			7 (use 500)

$$\text{Maximum Volume: } 36000 \cdot gal \times \frac{1}{7.4805} \frac{ft^3}{gal} = 481.25 \cdot ft^3$$

$$\text{Uncontrolled Emissions: } 481.25 \times 0.26 \frac{lb}{ft^3} = 125.125 \frac{lb}{hr}$$

Vapor Control System: Dual carbon adsorption in series
95% control efficiency each (Use 99.5% control efficiency)

System operates 2-hr/day

$$125.125 \frac{lb}{hr} \left(1 - \frac{95}{100}\right) = 0.626 \frac{lb}{hr}$$

$$0.626 \frac{lb}{hr} \times 2 \frac{hr}{day} = 1.25 \frac{hr}{day}$$

$$1.25 \frac{hr}{day} \times 365 \frac{days}{year} \times \frac{1}{2000} \frac{tons}{lb} = 0.23 \frac{tons}{year}$$

ATC No. 0369005 (Vapor Control System) Emissions Summary:

	PM ₁₀	SOx	NOx	VOC	CO
lb/hr:				0.63	
lb/day:				1.25	
tons/yr:				0.23	

5. **ATC No. 0369006 (300-bhp {224-kW} Engine Driving Fire Water Pump):**

Example Emission Calculations for PM₁₀ (Identical Calculations for SOx, NOx, VOC and CO, results are summarized below):

	PM-10	SOx	NOx	VOC	CO
lb/hp-hr	3.31E-04	1.11E-05	6.17E-03	4.41E-04	5.73E-03

$$PM_{10}: \quad 3.31 \times 10^{-4} \frac{lb \cdot PM_{10}}{hp \cdot hr} \times 300 \cdot hp = 0.099 \frac{lb}{hr}$$

$$0.099 \frac{lb}{hr} \times 24 \frac{hr}{day} = 2.381 \frac{lb}{day}$$

$$0.099 \frac{lb}{hr} \times 200 \frac{hr}{year} \times \frac{1 \text{ tons}}{2000 \text{ lb}} = 0.010 \frac{tons}{year}$$

ATC No. 0369006 (300-bhp Engine Driving Firewater Pump) Emissions Summary:

	PM-10	SOx	NOx	VOC	CO
lb/hr	0.099	0.003	1.852	0.132	1.720
lb/day	2.381	0.080	44.453	3.175	41.278
tons/yr	0.010	0.0003	0.185	0.013	0.172

6. **ATC No. 0369007 (Bio-Remediation Operation):**

Assumed 95% of light VOC component emitted into the atmosphere during leak. Heavy hydrocarbon (VOC) in soil transferred to bio-pile/land-farm for treatment. Minimum 95% control efficiency for heavy hydrocarbons expected for land farming operation.

Uncontrolled VOC Emissions (from liquid leaks – 0369004):

From ('004 – '009): 1.62 lb/hr

$$1.632 \frac{lb}{hr} \times \left(1 - \left(\frac{95}{100} \right) \right) = 0.082 \frac{lb}{hr}$$

$$21.388 \frac{lb}{day} \times \left(1 - \left(\frac{95}{100} \right) \right) = 1.069 \frac{lb}{hr}$$

$$1.069 \text{ lb/day} \times 365 \text{ hours/yr} \times 0.0005 \text{ tons/lb} = 0.195 \text{ tons/year}$$

Controlled VOC Emissions

Land Farming with 95% Control Efficiency

$$0.082 \frac{lb}{hr} \times \left(1 - \left(\frac{95}{100} \right) \right) = 0.004 \frac{lb}{hr}$$

$$0.004 \text{ lb/hr} \times 24 \text{ hr/day} =$$

$$0.098 \text{ lb/day}$$

$$0.004 \text{ lb/hr} \times 8760 \text{ hours/yr} \times 0.0005 \text{ tons/lb} =$$

$$0.018 \text{ tons/year}$$

7. Emissions Summary:

0369001 (Boiler #1):	PM-10	SOx	NOx	VOC	CO
lb/hr:	0.22	0.02	0.33	0.16	1.11
lb/day:	3.04	0.24	4.62	2.20	15.54
tons/yr:	0.11	0.01	0.17	0.08	0.56

0369002 (Boiler #2):	PM-10	SOx	NOx	VOC	CO
lb/hr:	0.22	0.02	0.33	0.16	1.11
lb/day:	3.04	0.24	4.62	2.20	15.54
tons/yr:	0.11	0.01	0.17	0.08	0.56

0369003 (Clng Twr):	PM-10	SOx	NOx	VOC	CO
lb/hr:	0.60				
lb/day:	9.55				
tons/yr:	1.74				

0369004 (*HTF Storage):	PM-10	SOx	NOx	VOC	CO
lb/hr:				1.63	
lb/day:				21.39	
tons/yr:				3.90	

*Fugitive emissions only, exhaust emissions assed on '005

0369005 (Vapor Control):	PM-10	SOx	NOx	VOC	CO
lb/hr:				0.63	
lb/day:				1.25	
tons/yr:				0.23	

0369006 (Firewater Pump):	PM-10	SOx	NOx	VOC	CO
lb/hr:					
lb/day:	Emergency Equipment (Not added to NSRB or SSPE)				
tons/yr:					

0369007 (Landfarm):	PM-10	SOx	NOx	VOC	CO
lb/hr:				0.00	
lb/day:				0.09	
tons/yr:				0.02	

Totals:	PM-10	SOx	NOx	VOC	CO
lb/hr:	1.13	0.04	2.51	2.71	3.94
lb/day:	18.01	0.56	53.69	30.31	72.36
tons/yr:	1.97	0.02	0.52	4.32	1.28

IX. EMISSION CHANGES:

A. PROJECT'S EMISSION CHANGE:

Sum of emissions changes for all emissions units to be included in the NSR Balances (NSRB) and the Stationary Source Potentials to Emit (SSPE). (See Page 39)

	PM₁₀	SO_x	NO_x	VOC	CO
lb/day:	18.01	0.56	53.69	30.31	72.36
tons/yr	1.97	0.02	0.52	4.32	1.28

B. PRE-PROJECT NSR BALANCES AND SSPE:

	NSRB	NSRB	SSPE	SSPE	NSRB
Pollutant:	PM₁₀	SO_x	NO_x	VOC	CO
lb/day:	0.0	0.0	0.0	0.0	0.0
tons/yr:	0.0	0.0	0.0	0.0	0.0

C. POST-PROJECT CUMULATIVE NSR BALANCE AND SSPE:

Pre-Project NSR Balance/SSPE + Projects Emissions Change

	NSRB	NSRB	SSPE	SSPE	NSRB
Pollutant:	PM₁₀	SO_x	NO_x	VOC	CO
lb/day:	18.01	0.56	53.69	30.31	72.36
tons/yr:	1.97	0.02	0.52	4.32	1.28

X. CONCLUSIONS:

A. Rule 210.1 (conclusions based on worst case):

satisfies requirements of Section III.A. (BACT)

Project not subject to Sec. III.B. (offsets), NSR balance for SO_x < 27 tons/yr, and PM₁₀ < 15 tons/yr and SSPE for VOC and NO_x < 25 tons/yr,

Project subject to Sec III.B. (offsets), NSR balance for VOC >25 tons/yr

Project not subject to NSR requirements Sec

B. Rule 401: Only visible emissions from the solar power plant should be limited to the plant boilers, firewater pump, and fugitive dust emissions. For the boilers and firewater pump, visible emissions are not expected to exceed 5% opacity or Ringelmann ¼. Fugitive dust emissions will be addressed in Rule 402 Compliance. Compliance with Rule 401 is expected.

C. Rule 402: Because the proposed operation involves property exceeding 100 contiguous acres of disturbed surface area, applicant shall be required to submit a Fugitive Dust Plan, as the area is defined as a Large Operation. The Fugitive Dust Plan shall include also include a "High Wind Fugitive Dust Plan" for instances with wind gust exceed 25-mile per hour. Additionally, Fugitive Dust Plan shall include Reasonably Available Control Measures (RACM). RACM include, but are not limited to the following:

Source Category

Control Measure

Improve Road Surface

Control Vehicular Traffic Speed

Application of Dust Suppressants

Source Category (cont.)	Control Measure
Construction/Demolition	Use of Wind Screens Application of Dust Suppressants
Earth-moving or Open Storage Pile	Use of Wind Breaks Enclosures Around Storage Piles Application of Dust Suppressants
Disturbed Surface Area	Use of Fences/Barriers Vegetate Application of Dust Suppressants Cover with Gravel Compact Surface

Beacon Energy has made a commitment to submit a “Construction Dust Control Plan” and an “Operations Dust Control Plan” prior to commencement of construction. District shall monitor facility for construction to verify compliance. Compliance with Rule 402 is expected.

- D. Rule 404.1: Particulate matter emissions from the facility should be limited to the plant boilers, cooling tower, firewater pump and fugitive dust emissions. Fugitive dust emissions are addressed in Rule 402 compliance above. Natural gas fueled boilers are exempt from the requirements of this rule. Calculations show particulate matter emission concentration from the cooling tower and diesel fueled firewater pump are less than 0.1-gr/scf. Compliance with Rule 401.1 is expected.
- E. Rule 407: Sulfur content of natural gas is not expected to exceed 0.025-grains per standard cubic foot (gr/scf). Given known combustion principles, the SO₂ emission rate shall be less than 0.2%. Compliance with Rule 407 is expected.
- F. Rule 411: HTF storage/expansion vessels shall be equipped with vapor control system. Therefore, compliance with Rule 411 is not required.
- G. Rule 414.2: HTF treated on-site shall comply with “Maximum Allowable Addition Rates of Contaminated Soil” (Rule 414.2, Section V.B) or “Treatment System” (Rule 414.2, Section V.C). Applicant has proposed usage of “Land Farming” operation utilizing Bio-Remediation to comply with BACT and requirements of Rule 414.2. Compliance with Rule 414.2 is expected.
- H. Rule 419: Proposed facility has several of control devices and systems to minimize nuisance emissions. Proposed facility will be required to maintain an inspection and maintenance program listed on ATC 0369004, included as part of the facilities BACT requirements. In general leak criteria, inspection frequency, and repair times are set forth as BACT requirement. Additionally, the facility is located in an industrial area with no residences adjacent to the property. Nuisance emissions are not expected. Compliance with Rule 419 is expected.
- I. Rule 422 (Standards of Performance for New Stationary Sources) 40 CFR Part 60, Subpart IIII (Stationary Compression Ignition Internal Combustion Engines): Proposed fire pump engine is certified to Tier 3 standards; therefore, compliance with 40 CFR Part 60, Subpart IIII is expected.

- J. Rule 429.1: Proposed cooling tower is prohibited from using hexavalent chromium compounds in cooling tower circulating water. Applicant has not proposed usage of chromium compound in circulating compounds; therefore, compliance with Rule 419 is expected.
- K. California Health and Safety Code (CH&SC) 41700: A Screening Health Risk Assessment was performed for the expected emissions from the Clean Energy facility. Prioritization Score for carcinogenic and non-carcinogenic emissions are less than 1.0. Therefore, proposed facility should not propose a significant health risk to community at large. Compliance with CH&SC 41700 is expected.

XI. RECOMMENDATIONS:

Issue Authority to Construct Nos. 0369001 through 0369007 subject to the following conditions:

**ATC Nos. 0369001 and '002 (30.0-MMBtu/hr Natural Gas Fueled Boilers No. 1 and No. 2):
EQUIPMENT DESCRIPTION:**

- A. 30.0-MMBtu/hr (900-hp) natural gas fueled boiler with low-NOx burner system.

DESIGN CONDITIONS:

- a. Boiler shall be fueled exclusively with natural gas. (Rule 210.1)
- b. Boiler described above shall be equipped with low NOx burner and be in accordance with manufacturer's specifications. (Rule 210.1)
- c. Boiler exhaust stack shall be equipped with provisions for collection of pollutant samples in manner consistent with U. S. EPA test methods. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. Visible emissions from boiler exhaust stack shall not exceed 5% opacity or Ringelmann No. ¼. (Rule 210.1 BACT Requirement)
- 2. Boiler operation shall not exceed 1000-hours/year without prior District approval. (Rule 210.1)
- 3. Boiler exhaust concentration of sulfur oxides (calculated as SO₂) shall not exceed 2000 parts per million on a volume basis (ppmv). (Rule 407)
- 4. Volume of natural gas used as fuel for boiler shall not exceed 28.6 million standard cubic feet per year (MMscf/yr). (Rule 210.1)
- 5. Operator shall comply with applicable monitoring, testing, and recordkeeping requirements of Rule 425.2. (Rule 425.2)
- 6. Operator shall maintain annual records of fuel use. (Rule 425.2)
- 7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
- 8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH & SC 41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Boiler stack shall be equipped with sampling ports (in accordance with California Air Resources Board Standards), sampling platform, access to sampling platforms, and utilities for sampling equipment to perform source-sampling operations. (Rule 108.1)

Initial compliance with NOx emission limits shall be verified by compliance test utilizing test methods listed in Subsection VI.B of Rule 425.2 within 60-days of District initial start-up inspection. (Rule 210.1)

Initial testing for Rule 425.2 shall commence within 60-days after annual boiler heat attains or exceeds 90,000 therms (9,000-MMBtu). Boiler shall be tested in accordance with test methods listed in Subsection VI.B and in accordance to schedule in Subsection VI.C of Rule 425.2. (Rule 425.2)

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.22 lb/hr
	3.04 lb/day
	0.11 ton/yr
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.02 lb/hr
	0.24 lb/day
	0.01 ton/yr
<u>Oxides of Nitrogen (NO₂):</u>	9 ppmv @ 3% O ₂ (Rule 210.1 BACT Rqmt.)
	0.33 lb/hr
	4.62 lb/day
	0.17 ton/yr
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.16 lb/hr
	2.20 lb/day
	0.08 ton/yr
<u>Carbon Monoxide:</u>	50 ppmv
	1.11 lb/hr
	15.54 lb/day
	0.56 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

ATC No. 0369003 (Forced Draft Cooling Tower with 11 Cells and High Efficiency Drift Eliminator):

- A. Eleven 140-MMBtu (13,600-gpm) Cooling Tower Cells
- B. Eleven 250-hp Cooling Tower Fans
- C. Two 2,000-hp (79,000-gpm) Cooling Water Pumps
- D. Make-Up Water Tank
- E. 50-hp Make-Up Water Pump

OPERATIONAL CONDITIONS:

1. No hexavalent chromium containing compounds shall be added to cooling tower circulating water. (Rule 429.1)
2. Drift eliminator drift rate shall not exceed 0.0005%. (Rule 210.1)
3. Cooling tower total dissolved solids (TDS) shall not exceed 720 mg/liter (0.01335 lb/gal). (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 149,000-gal/minute. (Rule 210.1)
5. Compliance with hourly PM₁₀ emission rate shall be determined by the product of the following factors: circulating water rate (gpm), total dissolved solids in blowdown water (lb/gal), design drift rate (%), and 60-min/hr. (Rule 210.1)
6. Operator shall comply with applicable monitoring, testing, and recordkeeping requirements of Rule 429.1. (Rule 429.1)
7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH & SC 41700)
9. Compliance with PM₁₀ emission limits shall be determined by continuous conductivity monitoring of blowdown water with results available to District staff available to District staff upon request, and annual calibration verification available to District staff upon request. In-lieu of continuous conductivity monitoring, tests of total solids in blowdown water sample analysis shall be completed at a minimum of once per week by independent laboratory. (Rule 210.1)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1, 210.1, and 429.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.60 lb/hr
	9.55 lb/day
	1.74 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

ATC No. 0369004 (Six 6000-Gallon Heat Transfer Fluid (HTF) Expansion Tank Vented To Vapor Control System, Including HTF Piping Network):

- A. Six 6,000 Gallon HTF Expansion Tank No. 1 through No. 6 each with PV vent valve,
- B. 25-hp Expansion tank pump,
- C. HTF Fluid pumps (400-hp),
- D. Nitrogen blanket system,
- E. HTF piping header,
- F. HTF ullage system,
- G. Solar field piping,
- H. Solar generating system piping, and
- I. Piping from expansion tank to vapor control system.

DESIGN CONDITIONS:

- a. Each HTF tank shall be connected to volatile organic compound (VOC) vapor control system (Permit No. 0369005). (Rule 210.1)
- b. Volume of each tank shall not exceed 6,000-gallons without prior District approval. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. HTF expansion vessel shall be gas tight and vent to vapor control system (Permit No. 0369005). (Rule 210.1 BACT Requirement)
- 2. Permittee shall establish an inspection and maintenance program to determine, repair, and long leaks in HTF piping network and expansion tanks. Inspection and maintenance program and related logs shall be available to District staff upon request. (Rule 210.1 BACT Requirement)
- 2. Permittee shall establish an inspection and maintenance program to determine, repair, and long leaks in HTF piping network and expansion tanks. Inspection and maintenance program and related logs shall be available to District staff upon request. (Rule 210.1 BACT Requirement)
 - 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. VOC leaks greater than 100-ppmv shall be repaired within seven calendar days of detection.
 - d. VOC leaks greater than 10,000-ppmv shall be repaired within 24-hours of detection.
 - e. Permittee shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, and repair made.
 - f. Permittee shall maintain record of the amount of HTF replaced on a monthly basis for a period of 5 years.
 - g. Any leak detected by District inspection(s) exceeding 100-ppmv and not repaired in 7-days and 10,000-ppmv not repaired within 24-hours shall constitute a violation of this Authority to Construct (ATC)/Permit to Operate (PTO).
 - h. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.
3. The following component count shall be utilized to determine fugitive emissions:

Equipment	Service	Count
Valves	Light Liquid	3050
Pump Seals	Light Liquid	4
Connectors*	Light Liquid	7550
Pressure Relief Valve	Gas	6
Open-ended Lines	Light Liquid	44

- 4. Each expansion tank shall have fixed roof without holes, tears, or other such openings, except pressure/vacuum (PV) valves, in the cover which allow the emission of VOC. (Rule 210.1)
- 5. All expansion tank hatches shall be kept closed and gap-free, except during maintenance, inspection, or repair. (Rule 210.1)
- 6. Tank roof appurtenances shall not exhibit emissions exceeding 10,000-ppmv as methane measured with an instrument calibrated with methane and conducted in accordance with U.S. EPA Method 21. (Rule 411)
- 7. Each tank shall be maintained leak-free. A "leak" is defined as the dripping of liquid volatile organic compounds at a rate of three or more drops per minute, or vapor volatile organic compounds in excess of 10,000-ppm as equivalent methane as determined by U.S. EPA Test Method 21. (Rule 210.1)
- 8. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 210.1 and 209)
- 9. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 210.1)
- 10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC Sec 41700)
- 11. The District shall be notified of any breakdown conditions in accordance with Rule 111 (Equipment Breakdown). (Rule 111)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with hourly and concentration emission limits for VOC shall be verified pursuant to Rule 108.1 and KCAPCD Guidelines for Compliance Testing, within 45 days of District request.

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

Fugitive Emissions (Connectors, Pumps, etc.)

<u>Volatile Organic Compounds (VOC):</u>	21.39	lb/day
	3.90	ton/yr

VOC Emissions from HTF Expansion Assessed on Permit No. 0369005

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

ATC No. 0369005 (Vapor Control System):

EQUIPMENT DESCRIPTION:

- A. Piping from expansion tanks (Permit Nos. 0369004) to vapor control system, and
- B. Two Granular Activated Carbon (GAC) adsorption units in series each with 1,000-lb GAC vessel, and sampling ports at entrance and exhaust.

DESIGN CONDITIONS:

- a. Vapor control system shall serve HTF expansion tanks and HTF piping system listed on Permit No. 0369004. (Rule 210.1)
- b. Carbon adsorption system shall provisions for monitoring between carbon beds and exhaust of carbon adsorption system. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Carbon adsorption system shall be operated during heat transfer fluid (HTF) expansion system operation and during operation of HTF Ullage system. (Rule 210.1)
2. Control efficiency of carbon adsorption vessels shall be at least 95%. (Rule 210.1)
3. Vapor samples shall be taken monthly between carbon beds and at the exhaust carbon adsorption system and tested for carbon breakthrough. (Rule 210.1)
4. Carbon breakthrough shall be defined as VOC concentration of 10-ppmv as hexane measured after primary carbon bed measured with a flame ionization detector (FID) or photo ionization detector (PID). (Rule 210.1)
5. Primary carbon bed shall be replaced upon indication of carbon breakthrough. (Rule 210.1)
6. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with application under which this permit is issued. (Rule 210.1)
7. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC, Sec 41700)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed the following emissions limitations:

Controlled Vapor Emissions:

<u>Volatile Organic Compounds (VOC):</u>	0.63 lb/hr
(as defined in Rule 210.1)	1.25 lb/day
	0.23 ton/yr

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and record keeping to document maximum daily emission rate) each day the source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 210.1 and 209)

ATC No. 0369006 (3000-gpm Emergency Firewater Pump Driven with 300-Bhp Diesel Fueled Piston Engine):

- A. 3000-gallon per minute (gpm) Clarke firewater pump driven by 300-bhp John Deere Tier 3 diesel fueled piston engine

DESIGN CONDITIONS:

- a. Engine shall be equipped with turbocharger and aftercooler. (Rule 210.1 BACT Requirement)
- b. Elapsed time meter shall be installed and maintained indicating cumulative hours of engine operating time. (Rule 210.1))

OPERATIONAL CONDITIONS:

- 1. Visible emissions from engine exhaust after engine has reached normal operating temperature shall not equal or exceed 5% opacity or Ringelmann No. ¼ for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
- 2. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft³ of gas at standard conditions. (Rule 404.1)
- 3. Fuel for diesel piston engine shall conform to California Air Resources Board standards for reformulated diesel fuel (low sulfur, 0.0015% by weight and low aromatic hydrocarbon, 20% by weight). (Rule 210.1 BACT Requirement)
- 4. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rule 210.1 and Rule 209)
- 5. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)
- 6. Operating record of this equipment shall be maintained in format approved in writing by District, kept for minimum of two years, and made available upon request of District personnel. Record shall include, at minimum, days and hours of operation, location of operation, amount of fuel oil supplied to this engine, and date(s), check(s) and certification(s) of injection timing. (Rules 209 and 210.1)

7. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC 41700)
8. Engine operation shall not exceed 200 hours per year without prior District approval. (Rule 210.1)
9. Diesel engine driving emergency fire water pump shall comply with Tier 3 emissions standards and Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. (California Code of Regulations 93115, Title 17)
10. Engine operation for maintenance and testing shall not exceed 50 hours per year without prior District approval. (Rule 210.1)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to KCAPCD within 30 days after test completion. (Rule 108.1 and 210.1)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.15 gm/bhp-hr
	0.10 lb/hr
	2.38 lb/day
	0.01 ton/yr
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.003 lb/hr
	0.08 lb/day
	0.0003 ton/yr
<u>Oxides of Nitrogen (NO_x as NO₂):</u>	2.8 gm/bhp-hr
	1.85 lb/hr
	44.45 lb/day
	0.19 ton/yr
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.13 lb/hr
	3.18 lb/day
	0.01 ton/yr
<u>Carbon Monoxide:</u>	1.72 lb/hr
	41.28 lb/day
	0.17 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

ATC No. 0369007 (Bio-Remediation of Hydrocarbon Contaminated Soil):

- A. 400-ft. by 800-ft. bio-remediation/land-farm facility,
- B. Irrigation system for bio-remediation/land-farm facility, and
- C. Bio-remediation fertilizer for enhanced bio-remediation.

DESIGN CONDITIONS:

- a. Bio-remediation area shall be lined with minimum 60-mil high density polyethylene (HDPE) or alternate lining approved by Lahontan Regional Water Quality Board (LRWQB). (Rule 210.1)
- b. Permittee shall provide District with depth of bio-remediation operation area. (Rule 210.1)

OPERATIONAL CONDITIONS:

- 1. Visible emissions from bio-remediation/land-farm facility shall not equal or exceed 0% opacity for more than 5 minutes in any two hour period. (Rule 210.1 BACT Requirement)
- 2. Permittee shall have flame ionization detector (FID) or photo ionization detector (PID) on site to measure soil VOC emissions (measured as hexane). (Rule 210.1)
- 3. Upon usage of bio-remediation operation, Permittee shall maintain weekly VOC readings of bio-remediation area. Permittee shall provide protocol for VOC readings, to be approved by District staff. (Rule 210.1)
- 4. If soil in bio-remediation area registers a VOC reading of less than 50-ppm by volume, measured three inches above soil surface, with FID or PID compliance with Condition No. 5 is not required. (Rule 210.1)
- 5. If soil in bio-remediation area registers a VOC reading greater than or equal to 50-ppm (calibrated to methane) by volume, measured three inches above soil surface, with FID or PID bio-remediation operation shall comply with the following conditions. (Rule 210.1)
 - a. Affected soil stockpile shall be covered with minimum 10-mil plastic sheeting within 24-hours of detection to control emissions during treatment until VOC readings 3-inches above the uncovered soil stockpile are less than 50-ppmv. (Rule 210.1)
 - b. Covered soil stockpile shall be treated by enhanced bio-remediation using accepted environmental engineering practices to maintain conditions suitable for bio-remediation. Soil in stockpiles shall be conditioned as necessary through addition of nutrients, moisture and air as needed
 - c. The following parameters in treatment area shall be monitored monthly: average of nine VOC readings over surface area, soil acidity (pH), soil moisture content (% weight), soil temperature (°F), and Nutrient Ratio (C:N:P)
 - d. Records of soil treatment and monitoring results shall be maintained at the site for a period of at least 5-years, and
 - e. If bio-remediation operation is not effective after 2 months (i.e. VOC readings show no reduction in VOC content), Permittee shall propose alternate method of soil remediation for District approval.
- 6. Soil moisture content shall be maintained between 40% and 85% of water holding capacity (12% to 30% by weight). (Rule 210.1)
- 7. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)
- 8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC 41700)

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed the following emissions limitations:

<u>Volatile Organic Compounds (VOC):</u>	0.10 lb/day
(as defined in Rule 210.1)	0.02 ton/yr

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

ATTACHMENT A

Energy Commissions Findings, Comments, and Responses



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
For the *BEACON SOLAR ENERGY*
PROJECT

Docket No. 08-AFC-2

PROOF OF SERVICE
(Revised 11/10/08)

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-9
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DECLARATION OF SERVICE

I, April Albright, declare that on January 6, 2009, I deposited copies of the attached Dry Cooling Evaluation and Notice of Proposed Preliminary Determination of Compliance in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Original signature in Dockets
April Albright

Attachments