Mojave Desert Air Quality Management District
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 • fax 760.245.2699
Visit our web site: http://www.mdaqmd.ca.gov
Eldon Heaston, Executive Director

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DATE	April 09 2009
RECD.	April 20 2009

April 9, 2009

Jack Caswell, Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Final Decision/Determination Ivanpah Solar Electric Generating System Rev A

Dear Mr. Caswell:

On December 3, 2008, the District issued the Final Determination of Compliance (FDOC) for the Ivanpah SEGS project. Subsequent to that submittal, and on behalf of the applicant, BrightSource Energy, a request was received from Sierra Research requesting revisions to permit conditions contained in the FDOC. Previously, boiler emissions of Volatile Organic Compounds (VOCs) were calculated using an emission factor of 0.0006 lb/MMBtu. Subsequently, the applicant determined that a more appropriate emission factor would be 5.5 lb/10_6 cubic feet of fuel, or 0.0054 lb/MMBtu, per EPA's compilation of emission factors, AP-42, Table 1.4-2.

This emission factor change results in a calculated increase in VOC emissions. Nonetheless, emissions remain below District thresholds for BACT and offsets. The revised enclosed FDOC contains the resultant changes.

If you have any questions regarding this action or the enclosure, please contact Samuel J. Oktay PE, Air Quality Engineer, at (760) 245-1661, x1610.

Sincerely,

Alan De Salvio
Supervising Air Quality Engineer

enclosure

cc: Director, USEPA Region 9
Chief, Stationary Source Division, CARB

Final Decision/Determination
Ivanpah Solar Electric Generating System
Revision History

Page	Description	Basis
12/3/2008 Revisions from PDOC to FDOC		
26,27	Permit Condition 6 applicable to all boilers, revised to delete reference to EPA letter	Applicant's request; citation to regulation sufficient
26	Permit Conditions 8 and 9 applicable to Ivanpah 1 & 2, revised to delete requirement for NOx CEMS	Applicant's request; continuous monitoring of combustion conditions adequate for a source not controlled by SCR.
27	Permit Condition 6 applicable to Ivanpah 3 boiler, revised to refer to 40 CFR 60 Subpart Da instead of Db	Subpart Da is applicable to the Ivanpah 3 boiler.
04-09-09 Applicant Initiated Changes		
12	Project VOC emissions corrected to 1.3 TPY	Applicant correction
16	Boiler VOC emissions corrected to reflect revised emission factor	Applicant correction
26	Ivanpah 1 & 2 Boiler Condition 5 corrected to reflect revised emission factor	Applicant correction
27	Ivanpah 3 Boiler Condition 5 corrected to reflect revised emission factor	Applicant correction

Final Decision/Determination
Ivanpah Solar Electric Generating System
(Ivanpah SEGS), located to the west of Ivanpah Dry Lake at the California/Nevada border.

A. Introduction

Pursuant to District Rule 1306, Electrical Energy Generating Facilities, the District has prepared this document.

Previously, the MDAQMD submitted its Preliminary Determination Document (PDD) to the USEPA Region 9, the California Energy Commission (CEC), and the California Air Resources Board (CARB), on February 14, 2008. Subsequent comments were not received. Additionally, the PDD was publically noticed with a public comment deadline of March 21, 2008; subsequent comments were not received.

The MDAQMD did receive comments from Steve Hill, of Sierra Research, the applicant's environmental consulting company. Those comments are provided as Attachment 1 at the end of this document. The MDAQMD had no objections to the comments and therefore the intent has been incorporated into the draft District permits and this document.

The MDAQMD received subsequent revisions from Steve Hill, of Sierra Research, via e-mail dated 03-31-09. The MDAQMD had no objection to these revision requests and they have been incorporated into the "A" revision of this document. The requesting letter has been incorporated as Attachment 2.

1. Application and Setting

The Mojave Desert Air Quality Management District (District) received an Application for the proposed Ivanpah Solar Electric Generating Station Power Project (Ivanpah SEGS) on September 20, 2007, and additional application package materials on September 24, 2007. Subsequently the District submitted a Notification of Intent to Participate (NOI) letter dated October 1, 2007, indicating the Mojave Desert AQMD (MDAQMD) has Intent to Participate (ITP) in the permitting process as well as the Application for Certification (AFC) for the Project known as Ivanpah Solar Electric Generating System (SEGS), pursuant to District Rule 1306.

This project will primarily consist of three large solar arrays focusing sun energy onto solar powered boilers to power steam turbines for commercially available electrical production. This power plant project will operate on Rankine Cycle principal with primary heat input from the sun.

Natural gas fired boilers will be also be used to heat water to operating temperatures in the morning, and during transient cloud cover scenarios. The boilers heat rating and permit conditions will preclude operation for sustained periods of reduced sunlight. Applicants has stated that heat input from natural gas will not exceed 5 percent of heat input from the sun, on an annual basis, and not exceed four hours on any given day.

Diesel fueled engines will be used emergency fire fighting capability and emergency electrical generation.

The following summarizes equipment that is permittable by the Mojave Desert AQMD as stationary sources of air contaminants:

- Three Diesel Fueled Fire Pumps, rated at 240 bhp each
- Four Diesel fueled Emergency Generators, rated at 3750 bhp each
- Two Natural gas fueled Boilers, rated at 231.1 Million BTU/hr each
- One Natural gas fueled Boiler, rated at 462.2 Million BTU/hr.

Emissions from the facility as proposed will not trigger offset thresholds for any criteria air pollutants. Diesel fueled engines will meet the most stringent emission standards available for Diesel fueled Off-road Compression Ignition Engines, the highest available Tier level for that engine horsepower rating.

2. Description of Project

The Applicant proposes to develop a solar energy project called the Ivanpah Solar Electric Generating System (Ivanpah SEGS). It will be located in southern California's Mojave Desert, near the Nevada border, and to the west of Ivanpah Dry Lake. The project will be located in San Bernardino County, California, on federal land managed by the Bureau of Land Management (BLM). It will be constructed in three phases: two 100-megawatt (MW) phases (known as Ivanpah 1 and 2) and a 200-MW phase (Ivanpah 3). The phasing is planned so that Ivanpah 1 (the southernmost site) will be constructed first, followed by Ivanpah 2 (the middle site), then Ivanpah 3 (the 200-MW plant on the north), though the order of construction may change. Each 100-MW site requires about 850 acres (or 1.3 square miles); the 200-MW site is about 1,660 acres (or about 2.6 square miles). The total area required for all three phases, including the Administration/Operations and Maintenance building and substation, is approximately 3,400 acres. The Applicant has applied for a right-of-way grant for the land from BLM. Although this is a phased project, it is being analyzed as if all phases are operational.

The heliostat (or mirror) fields focus solar energy on the power tower receivers near the center of each of the heliostat arrays. (There are three arrays in the 100-MW plants and four arrays in the 200-MW plant). In each plant, one Rankine-cycle reheat steam turbine receives live steam from the solar boilers, and reheat steam from one solar reheater—located in the

power block at the top of its own tower. The solar field and power generation equipment are started each morning after sunrise and insolation build-up, and shut down in the evening when insolation drops below the level required to keep the turbine online.

Natural gas fired boilers will be used to bring the systems up to operating temperature in the morning, and to keep system temperatures operational during transient cloud cover. The boilers will not allow operation for sustained periods of reduced sunlight (i.e., on cloudy days or at night). Solar heat will be used to keep each boiler in hot standby mode, capable of responding to demand on short notice. No fuel will be fired while a boiler is on hot standby. To save water in the site's desert environment, each plant will use a dry-cooling condenser.

In addition, each plant will have a backup diesel fuel-fired engine to provide power to operate boiler feed, recirculation, and firewater pumps if power is otherwise unavailable.

3. Intent to Participate- Final Report (Rule 1306B(2))

Pursuant to District Rule 1306(B)(2)(b), the District submitted a Notification of Intent to Participate (NOI) letter dated October 1, 2007. Additionally, the District will summarize any Best Available Control Technology (BACT) requirements, and provide an assessment as to whether this project will meet the requirements of District Regulation VIII and all other Rules and Regulations of the MDAQMD, including a Final list of operating conditions.

B. Laws, Ordinances, Regulations, and Standards (LORS)

Requirements of federal, state, and local jurisdictions are discussed herein, including a discussion regarding Compliance of the applicable requirements.

The U.S. Environmental Protection Agency (EPA) implements and enforces the requirements of many of the federal environmental laws. EPA Region 9, which has offices in San Francisco, administers federal air programs in California. The federal Clean Air Act, as most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary sources such as Ivanpah. EPA has promulgated the following stationary source regulatory programs to implement the requirements of the federal Clean Air Act:

- Prevention of Significant Deterioration (PSD)
- New Source Review (NSR)
- Title IV: Acid Rain Program
- Title V: Operating Permits
- National Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAPs)

1. Prevention of Significant Deterioration (PSD) Program Authority:

Clean Air Act §160-169A, 42 USC §7470-7491; 40 CFR Parts 51 and 52

Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding National Ambient Air Quality Standards (NAAQS) (i.e., attainment pollutants). The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks and wilderness areas). Although this program is normally implemented at the local level with federal oversight, it is presently implemented in the Mojave Desert Air Quality Management District (MDAQMD) by EPA Region 9.

Nonetheless the Ivanpah facility will not be a major stationary source, therefore, the Ivanpah SEGS is not subject to the PSD program.

2. New Source Review Authority:

Clean Air Act §171-193, 42 USC §7501 et seq.; 40 CFR Parts 51 and 52
Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to allow industrial growth without interfering with the attainment and maintenance of NAAQS.

New source review jurisdiction has been delegated to the MDAQMD.

3. Acid Rain Program Authority:

Clean Air Act §401 (Title IV), 42 USC §7651
Requires the monitoring and reporting of emissions of acidic compounds and their precursors. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to monitor, record, and in some cases limit emissions of sulfur dioxide (SO2) and oxides of nitrogen (NOx) from electrical power generating facilities. These standards are implemented at the local level with federal oversight.

Title IV applies to the Ivanpah SEGS, because the boilers are affected units (they combust fuel, and provide heat to a power generating facility with a nameplate capacity greater than 25 MW).

Administering Agency is the MDAQMD, with EPA Region 9 oversight.

4. Title V Operating Permits Program Authority:

Clean Air Act §501 (Title V), 42 USC §7661
Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II Acid Rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit.

EPA has delegated authority for this program to MDAQMD.

Emissions from the Ivanpah SEGS, are below Title V applicability thresholds, however, the project is subject to the Acid Rain program. Therefore, the Ivanpah SEGS is subject to the Title V Operating Permits Program.

Administering Agency is the MDAQMD, with EPA Region 9 oversight.

5. National Standards of Performance for New Stationary Sources Authority:

Clean Air Act §111, 42 USC §7411; 40 CFR Part 60
Establishes standards of performance to limit the emission of criteria pollutants (air pollutants for which EPA has established NAAQS) from new or modified facilities in specific source categories. These standards are implemented at the local level (MDAQMD) with federal oversight. The applicability of these regulations depends on the equipment size, process rate, and/or the date of construction, modification, or reconstruction of the affected facility. NSPS Subpart Da, Standards of Performance for Boilers, is applicable to the Ivanpah 3 boiler. NSPS Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, is also applicable to the emergency engines and fire pump engines.

Administering Agency is the MDAQMD, with EPA Region 9 oversight.

6. National Emission Standards for Hazardous Air Pollutants

Authority: Clean Air Act §112, 42 USC §7412
Establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by EPA as causing or contributing to the adverse health effects of air pollution, but for which NAAQS have not been established) from major sources of HAPs in specific source categories. These standards are implemented at the local level (MDAQMD) with federal oversight. As discussed below, the Ivanpah SEGS will not a major source of HAPS; Ivanpah SEGS is not subject to NESHAPs.

Administering Agency is the MDAQMD, with EPA Region 9 oversight.

7. Consistency with Federal Requirements

The MDAQMD has been delegated authority by the EPA to implement and enforce most federal requirements applicable to the project, including new source performance standards and new source review for nonattainment pollutants. Compliance with the MDAQMD regulations assures compliance and consistency with the corresponding federal requirements. The project would also be required to comply with the Federal Acid Rain requirements (Title IV). The MDAQMD has delegated authority to implement Title IV through its Title V permit program, the Ivanpah Title V

Federal Operating Permit would include the necessary requirements for compliance with the Title IV Acid Rain provisions.

8. State LORS

The California Air Resources Board (CARB) was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update, as necessary, the California Ambient Air Quality Standards (CAAQS); to review the operations of the local air pollution control districts (APCDs); and to review and coordinate preparation of the State Implementation Plan (SIP) for achievement of the NAAQS. CARB has implemented the following state or federal stationary source regulatory programs in accordance with the requirements of the federal Clean Air Act and California Health and Safety Code (H&SC):

- State Implementation Plan
- California Clean Air Act
- Toxic Air Contaminant Program
- Airborne Toxic Control Measure for Stationary Compression-Ignition Engines
- Nuisance Regulation
- Air Toxics "Hot Spots" Act
- California Energy Commission (CEC) and CARB Memorandum of Understanding

9. State Implementation Plan

Authority: H&SC §39500 et seq.
The State Implementation Plan (SIP) demonstrates the means by which all areas of the state will attain and maintain NAAQS within the federally mandated deadlines, as required by the federal Clean Air Act. CARB reviews and coordinates preparation of the SIP. Local districts must adopt new rules or revise existing rules to demonstrate that resulting emission reductions, in conjunction with reductions in mobile source emissions, will result in attainment of the NAAQS. The relevant MDAQMD Rules and Regulations that have also been incorporated into the SIP are discussed in the local LORS section of this document.

Administering Agency is the MDAQMD, with CARB and EPA Region 9 oversight.

10. California Clean Air Act

Authority: H&SC §40910 – 40930
Established in 1989, the California Clean Air Act requires local districts to attain and maintain both national and state ambient air quality standards at the "earliest practicable date." Local districts must prepare air quality plans demonstrating the means by which the ambient air quality standards will be attained and maintained. The relevant components of the MDAQMD Air Quality Plan are discussed within the local LORS section of this document.

Administering Agency is the MDAQMD, with CARB oversight.

11. Toxic Air Contaminant Program

Authority: H&SC §39650 – 39675
Established in 1983, the Toxic Air Contaminant Identification and Control Act created a two-step process to identify toxic air contaminants (TACs) and control their emissions. CARB identifies and prioritizes the pollutants to be considered for identification as toxic air contaminants. CARB assesses the potential for human exposure to a substance, while the Office of Environmental Health Hazard Assessment evaluates the corresponding health effects. Both agencies collaborate in the preparation of a risk assessment report, which concludes whether a substance poses a significant health risk and should be identified as a toxic air contaminant. In 1993, the Legislature amended the program to include the federally identified HAPs as toxic air contaminants. CARB reviews the emission sources of an identified toxic air contaminant and, if necessary, develops air toxics control measures to reduce the emissions.

Administering Agency is CARB

12. Airborne Toxic Control Measure for Stationary Compression-Ignition Engines

Authority: Title 17, California Code of Regulations, §93115
The purpose of this airborne toxic control measure (ATCM) is to reduce diesel particulate matter (DPM) and criteria pollutant emissions from stationary diesel-fueled compression ignition engines. The ATCM applies to stationary compression ignition engines with a rating greater than 50 brake horsepower. The ATCM requires the use of CARB-certified diesel fuel or equivalent, and limits emissions from, and operations of, compression ignition engines.

Administering Agency is MDAQMD and CARB

13. Nuisance Regulation

Authority: CA Health and Safety Code §41700
Provides that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes 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."

Administering Agency is MDAQMD and CARB

14. Air Toxic "Hot Spots" Act

Authority: H& SC §44300-44384; 17 CCR §93300-93347
Established in 1987, the Air Toxics "Hot Spots" Information and Assessment Act supplements the toxic air contaminant program, by requiring the development of a statewide inventory of air toxics emissions from stationary sources. The program requires affected facilities to prepare (1) an emissions inventory plan that identifies relevant air toxics and sources of air toxics emissions; (2) an emissions inventory report quantifying air toxics emissions; and (3) a health risk assessment, if necessary, to characterize the health risks to the exposed public. Facilities whose air toxics emissions are deemed to pose a significant health risk must issue notices to the exposed population. In 1992, the Legislature amended the program to further require facilities whose air toxics emissions are deemed to pose a significant health risk to implement risk management plans to reduce the associated health risks. This program is implemented at the local level with state oversight.

Administering Agency is the MDAQMD with CARB oversight.

15. CEC (California Energy Commission) and CARB Memorandum of Understanding

Authority: CA Pub. Res. Code §25523(a); 20 CCR §1752, 1752.5, 2300-2309 and Div. 2, Chap. 5, Art. 1, Appendix B, Part (k)
Provides for the inclusion of requirements in the CEC's decision on an Application For Certification (AFC) to assure protection of environmental quality; thus the AFC is required to include information concerning air quality protection.

Administering Agency is the CEC

16. Consistency with State Requirements

State law established local air pollution control districts and air quality management districts with the principal responsibility for regulating emissions from stationary sources. The Ivanpah SEGS is under the local jurisdiction of the MDAQMD, and compliance with MDAQMD regulations will assure compliance with state air quality requirements.

17. Local LORS

When the state's air pollution statutes were reorganized in the mid-1960s, local districts were required to be established in each county of the state. There are three different types of districts: county, regional (including the MDAQMD), and unified. In addition, special air quality management districts (AQMDs), with more comprehensive authority over non-vehicular sources, as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California. Local districts have principal responsibility to do the following:

- Develop plans for meeting the NAAQS and California ambient air quality standards;
- Develop control measures for non-vehicular sources of air pollution necessary to achieve

and maintain both state and federal air quality standards;
• Implement permit programs established for the construction, modification, and operation of sources of air pollution;
• Enforce air pollution statutes and regulations governing non-vehicular sources; and
• Develop programs to reduce emissions from indirect sources.

Under the regulations that govern new sources of emissions, the project is required to secure a preconstruction Determination of Compliance from the MDAQMD, as well as demonstrate continued compliance with regulatory limits when the new equipment becomes operational. The preconstruction review includes demonstrating that the new boilers, and diesel fueled engines will use best available control technology (BACT), if required, and will provide any necessary emission offsets.

This document fulfils the requirements of that pre-construction review.

18. Mojave Desert Air Quality Plans

Authority: H&SC §40914
Air quality plans define the proposed strategies, including stationary source and transportation control measures and new source review rules that will be implemented to attain and maintain the state ambient air quality standards. The relevant stationary source control measures and new source review requirements are discussed with MDAQMD Rules and Regulations.

Administering Agency is the MDAQMD with EPA Region 9 and CARB oversight.

19. Mojave Desert Air Quality Management District Rules and Regulations

Authority: H&SC §4000 et seq., H&SC §40200 et seq., indicated MDAQMD Rules
Establishes procedures and standards for issuing permits; establishes standards and limitations on a source-specific basis.

Administering Agency is the MDAQMD with EPA Region 9 and CARB oversight.

20. Authority to Construct

Regulation II—Permits, Rule 201 (Permit to Construct) specifies that any facility installing nonexempt equipment that causes or controls the emission of air pollutants must first obtain an Authority to Construct from the MDAQMD. Under Regulation XIII Rule 1306 (Electric Energy Generating Facilities) Section (E)(3)(b), the District's Final Determination of Compliance acts as an authority to construct for a power plant upon approval of the project by the CEC.

The MDAQMD will issue District approved ATC permits approximately after the Final Determination of compliance is accepted by the CEC.

21. Review of New or Modified Sources

Regulation XIII (New Source Review) implements the federal NSR and PSD programs, as well as the new source review requirements of the California Clean Air Act. The rule contains the following elements:

- BACT and Lowest Achievable Emission Rates (LAER)
- Emission offsets
- Air quality impact analysis (AQIA)

22. Best Available Control Technology (BACT)

BACT must be applied to any new or modified source which has a potential to emit 25 pounds per day or more of any Nonattainment Air Pollutant. The Nonattainment Air Pollutants are ozone and its precursors NOx and volatile organic compounds (VOC), and particulate matter (PM10) and its precursors NOx, SOx, and VOC.

The MDAQMD defines BACT (Rule 1301(K)(2)) for a non-major facility as the most stringent emission limitation or control technique that:

- Has been achieved in practice for the category or class of source; or
- Is any emission limitation or control technique determined to be technologically feasible and cost-effective; or
- Is contained in any SIP approved by EPA for such emission unit category, unless demonstrated to not be proven in field application, not be technologically feasible, or not be cost-effective.

None of the sources have a potential to emit above the BACT thresholds. Therefore, none of the sources is subject to the MDAQMD BACT requirements.

23. Emission Offsets

A new or modified source resulting in emission increases above the thresholds shown in the table below must offset emission increases of nonattainment pollutants (and their precursors). Table 1 shows that the emission increases from the Ivanpah SEGS are all below offset thresholds. Therefore, no offsets are required under District regulations.

TABLE 1 MDAQMD Offset Emission Thresholds

POLLUTANT	OFFSET THRESHOLD* (TPY)	IVANPAH ANNUAL EMISSIONS	OFFSETS REQUIRED?
CO	100	**4.5**	**No**
Hydrogen Sulfide	10	**0**	**No**
Lead	0.6	**0**	**No**
PM10	15	**1.8**	**No**
NOx	25	**3.4**	**No**
SOx	25	**0.7**	**No**
VOC	25	**1.4**	**No**

* MDAQMD Regulation XIII, Rule 1303 (B)(1)

24. Toxic Risk Management

Regulation XIII, Rule 1320 (New Source Review for Toxic Air Contaminants) provides a mechanism for evaluating the potential impact of toxic air contaminant (TAC, also called non-criteria pollutants) air emissions from new, modified, and relocated sources in the MDAQMD. The rule imposes more stringent requirements on sources with higher risks, as shown in Table 2.

25. BACT Requirements

This facility is primarily a Solar Energy powered power plant, and as proposed, the emissions associated with emergency and auxiliary equipment will be minimal. Nonetheless, District Rule 1306 requires the District to make a BACT assessment to all Electrical Energy Generating Facility's (EEGF's) proposed in the District. Pursuant to this requirement, the District has calculated the proposed equipment emissions and found that based on the emission factors supplied by the applicant and the daily operating hours of the emission producing equipment, BACT thresholds of 25 lbs/day would not be triggered. Although not required by District Rules, the applicant has stated that they would purchase and permit the least emitting, highest Tier level Diesel engine powered equipment available for their Diesel Fire Pumps, and Emergency Generators. Their Natural Gas fired Boilers would not trigger BACT thresholds and therefore will not be required meet to meet BACT requirements.

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The following tables summarize the expected emissions from the proposed equipment:

TABLE 2 Fire Pump Emissions:

Emissions		Normal Operation Testing and Maint. Hrs/Year	BHP	Normal Operation Testing and Maint. Hrs/Day	Max Daily PTE (pounds)				Max Annual (pounds)			
App No.	***Equipment***				**NOX & NMHC**	**SOX**	**CO**	**PM10**	**NOX & NMHC**	**SOX**	**CO**	**PM10**
'00009315	Tier III (Ivanpah I)	*50*	*240*	*1*	2	0.00	1.38	0.08	79	0	69	4
'00009312	Tier III (Ivanpah 2)	*50*	*240*	*1*	2	0.00	1.38	0.08	79	0	69	4
'00009319	Tier III (Ivanpah 3)	*50*	*240*	*1*	2	0.00	1.38	0.08	79	0	69	4
				Total Lbs/Day	5	0	4	0	238	0	206	12
							Tons/Year		0.1	0.0	0.1	0.0

TABLE 3 Emergency Generator Emissions (Cat 3516C-HD Tier II):

Emissions		Normal Operation Testing and Maint. Hrs/Year	BHP	Normal Operation Testing and Maint. Hrs/Day	Max Daily PTE (pounds)				Max Annual (pounds)			
App No.	***Equipment***				**NOX & NMHC**	**SOX**	**CO**	**PM10**	**NOX & NMHC**	**SOX**	**CO**	**PM10**
'00009316	Tier II (Ivanpah I)	*50*	*3750*	*0.5*	20	0.02	10.75	0.62	1984	2	1075	62
'00009313	Tier II (Ivanpah 2)	*50*	*3750*	*0.5*	20	0.02	10.75	0.62	1984	2	1075	62
'00009317	Tier II (Ivanpah 3)	*50*	*3750*	*0.5*	20	0.02	10.75	0.62	1984	2	1075	62
				Total Lbs/Day	60	0	32	2	5952	6	3224	186
								Tons/Year	3.0	0.0	1.6	0.1

TABLE 4 Boilers Emissions, Nebraska Boiler (Ivanpah I & II), Babcock-Wilcox (Ivanpah III)

Emissions		PTE Hrs/Year	PTE Hrs/Day	Max Daily PTE (pounds)					Max Yearly PTE (pounds)				
App No.	***Equipment***			**NOX**	**SOX**	**CO**	**TSP**	**VOC**	**NOX**	**SOX**	**CO**	**TSP**	**VOC**
'00009311	NSX-G-120 (Ivanpah I)	*1460*	*4*	10	3	17	7	4.9	3650	934	6176	2497	634
'00009314	NSX-G-120 (Ivanpah 2)	*1460*	*4*	10	3	17	7	4.9	3650	934	6176	2497	634
'00009320	Unknown (Ivanpah 3)	*1460*	*4*	20	5.16	33.84	13.68	9.8	7300	1883	12352	4993	1268
			Total Lbs/Day	40	10	68	27	20	14600	3752	24703	9986	2537
								Tons/Year	7	2	12	5	1.3

C. Air Quality

For purposes of state and federal air quality planning, the Mojave Desert Air Quality Management District (MDAQMD) is in attainment for NO2, SO2, and CO with respect to both state and national standards. The eastern portion of San Bernardino County (including the project site) has been designated by USEPA as "unclassified/attainment" for the federal 1-hour and 8-hour ozone standards. San Bernardino County is nonattainment for the federal PM10 standard, and MDAQMD is a nonattainment area for the state standard. Eastern San Bernardino County, where the Ivanpah project is located, is unclassified for the state PM2.5 standard, and is unclassified/attainment for the federal standard.

An assessment of the impact to air quality was performed by applicant using detailed air dispersion modeling. Existing 24-hour average PM10 background concentrations, and PM10 and PM2.5 annual background concentrations, already exceed state standards. However, PM10 and PM2.5 impacts from Ivanpah operations are very small and will not contribute significantly to the exceedance of an ambient air quality standard. The project's emissions are below the levels that require mitigation under MDAQMD regulations. Best Available Control Technology and offsets are not triggered. Modeling shows that the project will not result in any significant air quality impacts.

D. Renewable Energy

Ivanpah SEGS will assist California in repositioning its generation asset portfolio to use more renewable energy and reduce greenhouse gas emissions in conformance with state policies as set forth in SB 1078 and AB 32. It will help diversify the state's electricity sources, reducing its dependence on natural gas-fired power plants.

E. Emission Control and Monitoring

Air emissions from the combustion of natural gas in the start-up boiler will be controlled using state of-the-art systems. To ensure that the systems perform correctly, continuous emissions monitoring for (CEM's) NOx and CO will be mandated.

F. NOx Emission Control

The Ivanpah III boiler to be equipped with a Natcom low-NOx burner and 20 percent flue gas recirculation (FGR); maximum NOx emission of 9 ppm (0.012 lb/MMBtu); complies with the NSPS NOx standard of 0.2 lb/MMBtu.

G. Particulate Emission Control

Particulate emissions will be controlled by the use of best combustion practices; use of natural gas (low sulfur content) fuel for the boilers, and high efficiency air inlet filtration.

H. Continuous Emission Monitoring (CEMS)

CEMS shall be required for the Ivanpah III Boiler pursuant to 40 CFR 60 Subpart Da. This CEMs system shall sample, analyze, and record fuel gas flow rate, NOx and CO concentration levels, and percentage of O2 in the exhaust exiting to the atmosphere through the boiler stack. The CEMS will transmit data to a data acquisition system (DAS) that will store data and generate emission reports in accordance with permit requirements. The DAS will also include alarm features that will send signals

to the plant Data Collection System (DCS) when emissions approach or exceed permit condition limits.
The boilers located at Ivanpah I & II shall comply with the requirements of 40 CFR 50 Subpart Db, and are not required to have CEMS. However, the o/o shall conduct an initial compliance test for NOx emissions within 180 days of startup. This initial compliance test shall be used to develop a relationship between fuel firing rate, flue gas oxygen, and flue gas NOx concentration. This relationship shall be used to determine compliance with NOx emission limits contained in their permit.

I. Air Quality Alternate Site Analysis

From an air quality perspective, the plant's configuration and operation would be essentially the same at every location option considered; Ivanpah SEGS Site as compared with four other alternative site locations.

The type and quantity of air emissions from the alternative sites would be very similar, if not identical. Similarly, the impacts on the human population and the environment would only differ slightly because of the remote location of the sites and the low level of combustion required to augment the project's solar capabilities.

The Ivanpah SEGS site, Ivanpah Site A, and Ivanpah Site C are the only the locations that have communities within a 5-mile distance (i.e., 4.5 miles away, in Primm, Nevada). Local terrain is similar at all sites and not likely to change impacts. All of these sites are in the same air basin and any offsets, BACT considerations, and operating conditions, required by the MDAQMD would be the same at each site location.

J. CEC Review

Regulation XIII, Rule 1306 establishes a procedure for coordinating MDAQMD review of power plant projects with the CEC's AFC. Under this rule, the MDAQMD reviews the AFC and issues a Determination of Compliance for a proposed project. Once CEC approves the Determination of Compliance, the MDAQMD will issue Authority to Construct (ATC) permits, subsequently the Owner/Operator may begin constructing and installing equipment permitted by the MDAQMD, as referenced in the Determination of Compliance (DOC).

K. APPLICABLE MDAQMD RULES & REGULATIONS

1. MDAQMD Regulation II— Permits

Rule 201 – Permit to Construct
States that a person shall not erect, install, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer. *The applicant has submitted all required applications.* Furthermore, District Rule 1306 (Electric Energy Generating Facilities) Section (E)(3)(b), states that the District's Final Determination of Compliance acts as an authority to construct for a power plant upon approval of the project by the CEC.

Rule 203 – Permit to Operate
States that a person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written permit from the Air Pollution Control Officer or except as provided in Rule 202. The equipment shall not be operated contrary to the conditions specified in the permit to operate. *The applicant has submitted all required applications, and shall operate the affected equipment in compliance with permit conditions.*

Rule 221 – Federal Operating Permit Requirement
Requires certain facilities to obtain Federal Operating Permits. *The applicant has acknowledged that a Title V permit will be required as a result of Acid Rain and will submit an application for a Title V permit within the TBD time frame.*

2. MDAQMD Regulation IV— Prohibitory Rules
The general prohibitory rules in Regulation IV applicable to the project include the following:

Rule 401—Visible Emissions
Prohibits visible emissions as dark as, or darker than, Ringelmann No. 1 for periods greater than three minutes in any hour.

The use of natural gas in the boilers and good combustion tuning practices will minimize the possibility of any visible emission exceedance.

The proposed diesel fired emergency engines will be required to meet the highest available off-road EPA Tier engine rating standards, and to only burn California diesel fuel, not to exceed 15 ppm sulfur content. Along with proper operation, and maintenance, the visible emissions from these engines are not expected to exceed the visible emission standards.

Furthermore, pursuant to this rule, Permit conditions for all combustion equipment shall prohibit visible emissions exceedance.

Rule 402—Nuisance
Prohibits the 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.

The Ivanpah facility shall not emit odorous pollutants, and is expected to comply with this rule.

Rule 403—Fugitive Dust
Prohibits visible dust emissions off property due to transport, handling, construction, or storage activity. Requires dust minimization during grading and clearing of land. Limits the difference between upwind and downwind PM concentrations of 100 µg/cubic meter(5-hour average). Requires removal of particulate matter from equipment prior to movement on paved streets.

Construction emission mitigation measures including the use of water and/or dust suppressant materials will be required to ensure compliance with this requirement.

Rule 403.2—Fugitive Dust Control for the Mojave Desert Planning Area
The project lies outside the Mojave Desert Planning Area.

Rule 404—Particulate Matter Concentration
Prohibits PM emissions in excess of the concentration referenced at standard conditions, shown in Table 404(a).

The proposed PM10 emission rate for the boilers will limit PM emissions to less than 0.006 gr/dscf.

The proposed PM10 emission rate for the engines will limit PM emissions to less than 0.05 gr/dscf.

The affected equipment is expected to comply with the requirements of this rule.

Rule 405—Solid Particulate Matter Weight
A person shall not discharge into the atmosphere from any source, solid particulate matter including lead and lead compounds, in excess of the rate shown in Table 405 (a).

The Ivanpah facility is expected to operate in compliance with this rule.

Rule 406—Specific Contaminants
Prohibits sulfur emissions, calculated as SO2, in excess of 0.05 percent by volume (500 parts per million by volume [ppmv]), and acid gas emissions above specified levels.

The Ivanpah facility is expected to operate be in compliance with this rule; SO2 emissions from the project will be below 0.5 ppmv, based on the fuel sulfur content limit of 0.75 gr/100 scf.

Rule 407—Liquid and Gaseous Air Contaminants
Prohibits carbon monoxide emissions in excess of 2,000 ppmv.

The Ivanpah facility is expected to operate be in compliance with this rule, the CO emissions from the project boilers and engines will be well below 2,000 ppmv.

Rule 431—Sulfur Content of Fuels
Prohibits the burning of gaseous fuel with a sulfur content of more than 800 ppm and liquid fuel with a sulfur content of more than 0.5 percent sulfur by weight.

The requirement of utility grade natural gas for the boilers and the requirement of CARB ultra-low sulfur diesel fuel will ensure compliance with this rule.

Rule 475—Electric Power Generating Equipment
Limits NOx and PM emissions from electrical generating equipment rated greater than or equal to 50 MMBtu/hr to RACT levels. This rule applies to the emergency engines (NOx limit = 160 ppmv, firing on liquid fuel; PM limit not to exceed 0.01 gr/dscf @ 3 percent O2 and 5 kg/hour). *The proposed Tier 2 emergency diesel engines will meet this requirement.*

Rule 476—Steam Generating Equipment
Limits NOx emissions from steam generators rated above 50 MMBtu/hr to 125 ppm. This rule applies to the boilers. The boilers will be designed to meet a NOx level of 9 ppm. The following source-specific rules in Regulation XI are not applicable to the project; they apply only to sources located within the Federal Ozone Nonattainment Area.

3. MDAQMD Regulation IX Rule 900— Standards of Performance for New Stationary Sources
Regulation IX Rule 900 adopts, by reference, the federal standards of performance for new or modified stationary sources. The NSPS for Electric Utility Steam Generation Units (40 CFR 60, Subpart Da) applies to new large boilers (>250 MMBtu/hr capacity) that make steam used to generate electricity. The standard is applicable to Ivanpah 3 (416.7 MMBtu/hr). The standard is not applicable to Ivanpah 1 and 2 (231.1 MMBtu/hr each). The NSPS includes standards for particulate matter, sulfur dioxide, nitrogen oxides, and mercury. Emission standards for PM, SO2, and mercury will be met as a result of natural gas combustion. The Ivanpah boilers are designed to have NOx emissions of less than 9 ppm (0.012 lb/MMBtu), which complies with the NSPS NOx standard of 0.2 lb/MMBtu.

4. MDAQMD Regulation XI— Source Specific Standards
This regulation does not apply; project site location is within a Federal Ozone Attainment/Unclassified Area

Rule 1157—Boilers and Process Heaters
Limits CO and NOx from boilers.

Applies only to boilers located within the Federal Ozone Nonattainment Area, and therefore does not apply to Ivanpah.

Rule 1160—Internal Combustion Engines
Limits emissions from internal combustion engines.

Applies only to engines located within the Federal Ozone Nonattainment Area, and therefore does not apply to Ivanpah.

5. MDAQMD Regulation XII—Federal Operating Permits
Requires new or modified major facilities, NSPS sources, NESHAP sources, and/or Phase II Acid Rain facilities to obtain an operating permit containing the federally enforceable requirements mandated by Title V of the 1990 Clean Air Act Amendments. A permit application for a new or modified source must be submitted to the MDAQMD within 12 months of commencing operation. The application must present a process description, all new stationary sources at the facility, applicable regulations, estimated emissions, associated operating conditions, alternative operating scenarios, a facility compliance plan, and a compliance certification.

6. MDAQMD Regulation XII Rule 1210—Acid Rain Provisions of Federal Operating Permits
Adopts, by reference, the federal requirements of 40 CFR Part 72, which requires that certain subject facilities comply with maximum operating emissions levels for SO2 and NOx, and monitor SO2, NOx, and carbon dioxide emissions and exhaust gas flow rates. A Phase II Acid Rain facility, such as a new power plant project, must obtain an Acid Rain permit. A permit application must be submitted to the MDAQMD at least 24 months before operation of the new unit commences. The application must present all relevant Phase II sources at the facility, a compliance plan for each unit, applicable standards, and an estimated commencement date of operations.

7. MDAQMD Regulation XIII —New Source Review

Rule 1306— Electric Energy Generating Facilities
This Rule establishes the preconstruction review process for all Electric Energy Generating Facilities (EEGF) proposed to be constructed in the District and for which an Notice Of Intent (NOI) or Application for Certification (AFC) has been accepted by the California Energy Commission (CEC), as such terms are defined in MDAQMD District Rule 1301(T), (OO), (H) and (M) respectively.

The Mojave Desert Air Quality Management District (District) received an Application for the proposed Ivanpah Solar Electric Generating Station Power Project (Ivanpah SEGS) on September 20, 2007, and additional application package materials on September 24, 2007. Subsequently the District submitted a Notification of Intent to Participate (NOI) letter dated October 1, 2007, indicating the Mojave Desert AQMD (MDAQMD) has Intent to Participate (ITP) in the permitting process as well as the Application for Certification (AFC) for the Project known as Ivanpah Solar Electric Generating System (SEGS), pursuant to District Rule 1306.

This document will serve as the Final report pursuant to Rule 1306(B)(2) Final Report, as it includes the necessary elements:

(i) A Final specific definition or description of BACT for the proposed Facility; and
(ii) A Final discussion of whether there is a substantial likelihood that the requirements of this Regulation and all other District Rules can be satisfied by the proposed Facility; and
(iii) A Final list of conditions which the proposed Facility must meet in order to comply with this Regulation and any other applicable District Rules.

8. Prevention of Significant Deterioration (PSD)
MDAQMD does not have a rule that implements the federal PSD program. The PSD requirements apply, on a pollutant-specific basis, to any project that is a new major Stationary source or a major modification to an existing major stationary source. District Rule 1310 Federal Major Facilities and Federal Major Modifications defines threshold amounts for new federal major sources (Rule 1310(D) table 1), as well as threshold amounts for federal major modifications (Rule 1310 (D) table 2). The PSD requirements also apply to any project expected to have a significant impact upon Class I or Class II areas or significant emissions of non-criteria pollutants. PSD includes the following elements:
- Air quality monitoring
- BACT
- Air quality impact analysis
- Protection of Class I areas including visibility impacts

The project will not result in emissions exceeding the applicable PSD thresholds; Ivanpah SEGS will not be a "major facility", as defined in the PSD regulations.

L. Air Quality Setting

The geography of the potential site, elevations of the surrounding landscape, long-term climatic characteristics, and short-term weather variations all have important effects on the ground-level pollutant concentrations that result from project air emissions. The project site is in the Ivanpah Valley approximately 4.5 miles southwest of the intersection of Interstate 15 and the Nevada border at Stateline, Nevada, and 5.5 miles southwest of Primm, Nevada. The nominal site elevations for the Ivanpah 1, 2, and 3 plant sites are 878, 922, and 924 meters above mean sea level (amsl), respectively. Although the general area in the immediate vicinity of the project site is relatively flat, a knob of volcanic rock rises to 3,160 feet amsl 0.8 mile directly east of the sites, and complex terrain rises up to 6,000 feet amsl within 4 to 8 miles in most directions (except to the southeast).

M. Climate and Meteorology

The climate in the MDAQMD is desert. The cool, moist coastal air from the South Coast Air Basin is blocked by the San Gabriel and San Bernardino mountain ranges. The area is characterized by hot, dry summers and mild winters with annual rainfall averaging 2 to 5 inches per year. Meteorology tends to be influenced by a moderately intense anticyclonic circulation except during frontal activity (storms) in the winter, which averages 20-30 frontal systems. In the summer, the MDAQMD is usually influenced by a Pacific Subtropical High cell that sits off the coast of California. The prevailing winds are out of the west and south, resulting in a general west to east flow across the MDAQMD.

The amount of solar radiation is one factor influencing thermal turbulence, and the more thermal turbulence, the more dispersion of pollutants. The project area receives significant sunshine throughout the year, even during winter (over 3,000 hours per year of sunshine). Hourly surface meteorological data (e.g., hourly wind speed and direction, temperature) for Jean, Nevada during the period 2001-2004 was obtained from the website of the Clark County (Nevada) Department of Air Quality and Environmental Management. The Jean monitoring station is located approximately 16 miles north-northeast of the project site. The data for 2001 and 2002 were used in the air dispersion modeling. To the extent data were missing from the Jean datasets, surface meteorological data were substituted from data measured at Nellis Air Force Base, located approximately 35 miles northeast of the project site. Upper air data was taken from the Desert Rock, Nevada monitoring station located north of Las Vegas, and approximately 70 miles northwest of the project site. Wind speed and direction are key factors influencing the dispersion and transport of pollutants. Wind flows on an annual basis are predominately westerly. At Jean, Nevada, the most frequent wind direction is from the west-southwest. Wind speeds average approximately 5 miles per hour.

N. Air Quality Impact Analysis

The air quality impact analysis for the Ivanpah SEGS was performed by the applicants consulting company CH2MHILL using the USEPA approved AERMOD software program. The AERMOD model was used to evaluate impacts in simple, intermediate, and complex terrain.

The program combines equipment emissions to ambient air dispersion modeling, which subsequently provides incremental emission impact results to the area in and around the new emission sources.

The maximum hourly, daily and annual emissions were used in the air dispersion modeling to calculate the maximum potential ground-level concentrations contributed by the project to the ambient air.

The maximum modeled concentrations were combined with the maximum background ambient concentrations and compared with the state and federal ambient air quality standards.

The results indicate that Ivanpah operating emissions will not cause or contribute to violations of state or federal air quality standards.

Existing 24-hour average PM10 background concentrations and PM10 and PM2.5 annual background concentrations already exceed state standards; PM10 and PM2.5 impacts from Ivanpah operations will be minimal, and will not contribute significantly to the exceedance of any Ambient Air Quality Standard (AAQS).

O. PSD Increment Consumption

The Prevention of Significant Deterioration (PSD) program allows emission increases (increments of consumption) that do not result in significant deterioration of ambient air quality in areas where criteria pollutants have not exceeded the NAAQS. Although the project is not subject to PSD review, an analysis was conducted to determine whether the ambient impacts of the proposed project exceed the PSD significance thresholds.

The results indicate that for NO2, SO2, CO, and PM10, the Maximum Modeled Impact from Ivanpah is far below threshold levels.

P. Screening Health Risk Assessment (SHRA)

The SHRA is an analysis that provides potential health risks associated with the emissions of noncriteria pollutant that have hazardous characteristics. The receptor grid used for criteria pollutant modeling was also used for the SHRA.

The results indicate that acute and chronic health hazard indices are well below 1.0, and hence, are not significant. The MICR is 0.08 in one million, well below the ten in one million limit for the projects proposed with Toxics Best Available Control Technology (T-BACT).

In conclusion, the project will not pose a significant health risk at any location, under any weather conditions, under any operating conditions.

Q. Class I Area Visibility Protection

The two closest Class I Area's are Death Valley National Park and Lake Mead National Recreation Area, however, the emissions and the associated concentrations, are considered negligible and therefore a rigorous Class I visibility analysis is not required.

R. MDAQMD Permit Conditions

The following is equipment descriptions and permit conditions relating to the proposed project.

CONDITIONS APPLICABLE TO IVANPAH I & 2 (Two - 2) BOILER's, MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; 00009311 (B010375) & 00009314 (B010376), each consisting of:

Nebraska boilers, Model NSX-G-120, each equipped with Natcom Low-NOx Burners rated at a maximum heat input of 231.1 MMBTU/hr, and flue gas recirculation (FGR or EGR) operating at 13.9 % excess air, fueled exclusively on utility grade natural gas. Equipment shall use 225,000 cu-ft/hr of fuel and provide 220,000 lb/hr of steam. Each boiler is equipped with stacks that are 130 feet high and 60 inches in diameter.

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

2. The owner/operator (o/o) shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.

3. This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption in standard cubic feet.

4. The o/o shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTU's, and daily hours of operation.

5. Not later than 90 days after initial startup, the operator shall perform an initial compliance test on this boiler in accordance with the District Compliance Test Procedural Manual. This test shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmvd	Lb/MMBTU	Lb/hr
*NOx	9.0	0.011	2.5 (Per USEPA Methods 19 and 20)
SO2	1.7	0.003	0.6
*CO	25.0	0.018	4.2 (Per USEPA Method 10)
VOC	12.6	0.0054	1.2 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	1.7 (Per USEPA Methods 5 and 202 or CARB Method 5)

*corrected to 3% oxygen, on a dry basses, averaged over one hour

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial Steam Generating Units (NSPS Db).

7. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.

8. The o/o shall continuously monitor fuel flow rate and flue gas oxygen level.

9. The o/o shall conduct an initial compliance test for NOx emissions within 180 days of startup. This initial compliance test shall be used to develop a relationship between fuel firing rate, flue gas oxygen, and flue gas NOx concentration. This relationship shall be used to determine compliance with NOx emission limits contained in this permit.

10. The o/o shall comply with all applicable recordkeeping and reporting requirements of NSPS Db requirements.

11. This boiler shall not operate more than 4 hours in any single day, and no more than 1460 hours in any calendar year.

CONDITIONS APPLICABLE TO IVANPAH 3 BOILER, MDAQMD APPLICATION NUMBER; 00009320, consisting of:

Babcock-Wilcox boiler, Model unknown, equipped with an unknown Low-NOx Burner rated at a maximum heat input of 462.2 MMBTU/hr, and flue gas recirculation (FGR or EGR) operating at 13.9 % excess air, fueled exclusively on utility grade natural gas. Equipment shall use 450,000 cu-ft/hr of fuel and provide 440,000 lb/hr of steam. This boiler is equipped with a stack that is 130 feet high and 60 inches in diameter.

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

2. The owner/operator (o/o) shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.

3. This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption in standard cubic feet.

4. The o/o shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTU's, and daily hours of operation.

5. Not later than 90 days after initial startup, the operator shall perform an initial compliance test on this boiler in accordance with the District Compliance Test Procedural Manual. This test shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmvd	Lb/MMBTU	Lb/hr
*NOx	9.0	0.011	5.0 (Per USEPA Methods 19 and 20)
SO2	1.7	0.003	1.3
*CO	25.0	0.018	8.5 (Per USEPA Method 10)
VOC	12.6	0.0054	2.5 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	3.4 (Per USEPA Methods 5 and 202 or CARB Method 5)

*corrected to 3% oxygen, on a dry basses, averaged over one hour

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units (NSPS Da).

7. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.

8. The o/o shall install, calibrate, maintain and operate a continuous emissions monitoring system (CEMS) to measure and record NOx emissions according to 40 CFR Part 60 specifications.

9. The o/o shall conduct an initial compliance test for NOx emissions by conducting the CEMS RATA test within 180 days of startup; and shall collect data from the CEMS at all times that fuel is combusted in the boiler.

10. The o/o shall comply with all applicable recordkeeping and reporting requirements of NSPS Da.

11. This boiler shall not operate more than 4 hours in any single day, and no more than 1460 hours in any calendar year.

CONDITIONS APPLICABLE TO IVANPAH I, II, and III EMERGENCY FIRE PUMPS, MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; 00009312 (E010380), 00009315 (E010378), AND 00009319 (E010384), each consisting of:

Year of Manufacture 2008, Tier II, One Clarke, Diesel fired internal combustion engine, Model No. JU6H-UF62, and Serial number tbd, After Cooled, Direct Injected, Turbo Charged, producing 240 bhp with 6 cylinders at 2600 rpm while consuming a maximum of 10 gal/hr. This equipment powers a Pump.

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

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

3. These engines may operate in response to fire suppression requirements and needs.

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

5. A non-resettable four-digit (9,999) hour timer shall be installed and maintained on these units to indicate elapsed engine operating time.

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

7. The hour limit of Condition #6 can be exceeded when the emergency fire pump assemblies are driven directly by a stationary diesel fueled CI engine when operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 2006 edition or the most current edition approved by the CARB Executive Officer. {Title 17 CCR 93115(c)16}

8. The o/o shall maintain a operations log for these units current and on-site, either at the engine location or at a on-site location, for a minimum of two (2) years, and for another year where it can be made available to the District staff within 5 working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:
   a. Date of each use and duration of each use (in hours);
   b. Reason for use (testing & maintenance, emergency, required emission testing);
   c. Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,
   d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).

9. These fire protection units are subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115). In the event of conflict between these conditions and the ATCM, the more stringent requirements shall govern.

CONDITIONS APPLICABLE TO IVANPAH I, II, and III (Three - 3) EMERGENCY GENERATORS, MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; 00009313 (E010381), 00009316 (E010379), 00009317 (E010382) AND 00009318 (E010383), each consisting of:

Year of Manufacture 2008, Tier II, One Caterpillar, Diesel fired internal combustion engine, Model No. 3516C-HD, and Serial No. tbd, After Cooled, Direct Injected, Turbo Charged, producing 3750 bhp with 16 cylinders at 1800 rpm while consuming a maximum of 173 gal/hr. This equipment powers a Generator.

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

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

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

4. A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

5. This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 50 hours per year, and no more than 0.5 hours per day for testing and maintenance, excluding compliance source testing, . Time required for source testing will not be counted toward the 50 hour per year limit.

6. The o/o shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:
   a. Date of each use and duration of each use (in hours);
   b. Reason for use (testing & maintenance, emergency, required emission testing);
   c. Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,
   d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).

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

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

S. Public Comment and Notifications

1. Public Comment

Previously, the MDAQMD submitted its Preliminary Determination Document (PDD) to the USEPA Region 9, the California Energy Commission (CEC), and the California Air Resources Board (CARB), on February 14, 2008. Subsequent comments were not received. Additionally, the PDD was publically noticed with a public comment deadline of March 21, 2008; subsequent comments were not received.

Final permits (Authorities to Construct) shall be prepared approximately 15 days after the California Energy Commission has granted project approval.

Any comments on this Final Decision/Determination shall be forwarded to:
Eldon Heaston, Executive Director
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310
Attention: Samuel J. Oktay, PE

T. Agency Contacts for Ivanpah SEGS Air Quality

EPA Region 9, Permit issuance and oversight, Enforcement:

Gerardo Rios, Chief Permits Office
United States EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105

California Air Resources Board, Regulatory oversight:

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Sources Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812

California Energy Commission

Jack Caswell
Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814
Docket Number: 07-AFC-05

Mojave Desert Air Quality Management District, Permit issuance, enforcement:

Eldon Heaston, Executive Director
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392
Attention: Samuel J. Oktay, PE

U. Conclusion

The MDAQMD has reviewed the proposed project's impact, and determined that the post project facility will comply with all applicable State, Federal, and MDAQMD Rules and Regulations.

The MDAQMD recommends that the CEC approve this project.

Attachment 1

November 3, 2008

sierra research

1801 J Street
Sacramento, CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

Mr. Sam Oktay
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310

Subject: Comments on PDOC for Ivanpah SEGS Project

Dear Mr. Oktay:

We understand that the District is preparing to issue the Final Determination of Compliance (FDOC) for the Ivanpah SEGS project. On behalf of the applicant, BrightSource Energy, Inc., we offer the following suggested revisions to permit conditions contained in the PDOC.

CONDITIONS APPLICABLE TO IVANPAH 1 & 2 (Two - 2) BOILERS, MDAQMD APPLICATION NUMBERS: 00009311 & 00009314, each consisting of:

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial Steam Generating Units (NSPS Db) ~~as modified by EPA letter dated September 17, 2007~~.

8. The o/o shall continuously monitor fuel flow rate and flue gas oxygen level ~~install, calibrate, maintain and operate a continuous emissions monitoring system (CEMS) to measure and record NOx emissions according to 40 CFR Part 60 specifications~~.

9. ***The o/o shall conduct an initial compliance test for NOx emissions within 180 days of startup. This initial compliance test shall be used to develop a relationship between fuel firing rate, flue gas oxygen, and flue gas NOx concentration. This relationship shall be used to determine compliance with NOx emission limits contained in this permit.*** ~~***limit, by conducting the CEMS RATA test and collect data from the CEMS during the first 720 hours of operation (successive but not continuous periods of operation) within one (1) year of startup. EPA letter dated 9/17/2007 modifying 40 CFR 60.46b(e)(1) and 60.8(a).***~~

CONDITIONS APPLICABLE TO IVANPAH 3 BOILER, MDAQMD APPLICATION NUMBER: 00009320, consisting of:

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units (NSPS

Da)~~Db - Standards of Performance for Industrial-Steam Generating Units (NSPS Db) as modified by EPA letter dated September 17, 2007~~.

9. ***The o/o shall conduct an initial compliance test for NOx emissions by conducting the CEMS RATA test within 180 days of startup; and shall collect data from the CEMS at all times that fuel is combusted in the boiler ~~limit, by conducting the CEMS RATA test and collect data from the CEMS during the first 720 hours of operation (successive but not continuous periods of operation) within one (1) year of startup. EPA letter dated 9/17/2007 modifying 40 CFR 60.46b(e)(1) and 60.8(a).~~***

Suggested change: (All boilers, Condition 6): delete the phrase "as modified by EPA letter dated September 17, 2007."

Basis for change: EPA cannot modify a regulation by letter.

Suggested change: (All boilers, Condition 9): delete the citation "EPA letter dated 9/17/2007 modifying 40 CFR 60.46b(e)(1) and 60.8(a)." from conditions 9.

Basis for change: EPA cannot modify a regulation by letter.

Suggested change: Revise the due date for the initial compliance test to 180 days after startup.

Basis for change: 40 CFR 60.8 requires that the initial compliance test be conducted within 180 days of initial startup.

Suggested change: (Ivanpah 3, condition 6): refer to 40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units" instead of Db.

Basis for change: Subpart Da applies to each electric utility steam generating unit with the capacity to fire more than 250 MMBTU/hr of fossil fuel (40 CFR 60.40Da(a)). An electric utility steam generating unit is any steam electric generating unit that supplies more than 1/3 of its potential electric output capacity, and more than 25 MW, for sale.

Ivanpah 3 has a capacity to fire more than 250 MMBTU/hr of fossil fuel (capacity = 462.2 Million BTU/hr). Ivanpah I & 2 do not have the capacity to fire more than 250 MMBTU/hr (capacity = 231.1 Million BTU/hr each). Therefore Ivanpah 3 is subject to Subpart Da, while Ivanpah 1 & 2 are not.

Subpart Db applies to steam generating units with a capacity greater than 100 MMBTU/hr (40 CFR 60.40b(a)). It does not apply to units subject to Subpart Da (40 CFR 60.40(e)). Therefore Ivanpah 1 & 2 are subject to Subpart Db while Ivanpah 3 is not.

Suggested change: (Ivanpah 1 & 2, Condition 8 & 9): Revise the NOx monitoring requirement to require the o/o to monitor steam generating unit operating conditions and estimate NOx emissions instead of operating a CEMs.

Basis for change: Subpart Db requires a NOx CEMS with certain exceptions (60.48b(b)). One of those exceptions is for small (<250 MMBTU/hr) units that use a correlation (e.g., lb/MMBtu) to estimate emissions (60.48(g)).

Because of the low utilization rate (and emissions) of these boilers and the fact that NOx is passively controlled by burner design, rather than by active means such as SCR, the high cost of CEMS for these boilers is not justified. Use of a correlation based on fuel use and stack oxygen content will provide sufficiently accurate emission estimates.

Please feel free to contact me if you have any questions.

Sincerely,

Steve Hill

cc: Steve De Young
Director, Environmental, Safety and Health
BrightSource Energy
1999 Harrison Street, Ste. 2150
Oakland, CA 94612

Attachment 2

sierra research

1801 J Street
Sacramento, CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

March 31, 2009

Mr. Sam Oktay
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310

Subject: Revisions to the FDOC for Ivanpah SEGS Project

Dear Mr. Oktay:

On December 3, 2008, the District issued the Final Determination of Compliance (FDOC) for the Ivanpah SEGS project. On behalf of the applicant, BrightSource Energy, Inc., we are requesting revisions to permit conditions contained in the FDOC.

The District's compliance analysis is based upon emission information submitted to the District and the California Energy Commission (CEC) by the applicant. Emissions of Volatile Organic Compounds (VOCs) from the boilers were calculated using an emission factor of 0.0006 lb/MMBtu. Since we submitted the original application, we have determined that it would be more appropriate to use the emission factor found in EPA's compilation of emission factors, AP-42. The correct emission factor is 5.5 lb/10^6 cubic feet of fuel, or 0.0054 lb/MMBtu (AP-42 Table 1.4-2).

Although this will result in an increase in VOC emissions from the project, the emissions remain below District thresholds for BACT and offsets. The resulting changes to the tables contained in the AFC are shown in the updated tables attached to this letter.

We request that the following changes be made to the FDOC in order to correct the emissions.

CONDITIONS APPLICABLE TO IVANPAH 1 & 2 (Two - 2) BOILERS, MDAQMD APPLICATION NUMBERS: 00009311 & 00009314, each consisting of:

5. Not later than 90 days after initial startup, the operator shall perform an initial compliance test on this boiler in accordance with the District Compliance Test Procedural Manual. This test shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmvd	~~O2~~Lb/MMBTU	Lb/hr
*NOx	9.0	0.011	2.5 (Per USEPA Methods 19 and 20)
SO2	1.7	0.003	0.6
*CO	25.0	0.018	4.2 (Per USEPA Method 10)
VOC	~~1.4~~12.6	~~0.00060~~0.0054	~~0.1~~1.2 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	1.7 (Per USEPA Methods 5 and 202 or CARB Method 5)

*corrected to 3% oxygen, on a dry basis, averaged over one hour

CONDITIONS APPLICABLE TO IVANPAH 3 BOILER, MDAQMD APPLICATION NUMBER: 00009320, consisting of:

5. Not later than 90 days after initial startup, the operator shall perform an initial compliance test on this boiler in accordance with the District Compliance Test Procedural Manual. This test shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmvd	~~O2~~Lb/MMBTU	Lb/hr
*NOx	9.0	0.011	5.0 (Per USEPA Methods 19 and 20)
SO2	1.7	0.003	1.3
*CO	25.0	0.018	8.5 (Per USEPA Method 10)
VOC	~~1.4~~12.6	~~0.00060~~0.0054	~~0.3~~2.5 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	3.4 (Per USEPA Methods 5 and 202 or CARB Method 5)

*corrected to 3% oxygen, on a dry basis, averaged over one hour

Please feel free to contact me if you have any questions.

Sincerely,

Steve Hill

cc: Steve De Young
Director, Environmental, Safety and Health
BrightSource Energy
1999 Harrison Street, Ste. 2150
Oakland, CA 94612

CEC Docket 07-AFC-5

REVISIONS TO IVANPAH SEGS AFC TABLES

TABLE 5.1-1 (REVISED 3/31/09)
MDAQMD OFFSET EMISSION THRESHOLDS

Pollutant	Offset Threshold[a], tpy	Ivanpah Annual Emissions	Offsets Required?
CO	100	4.5	No
Hydrogen Sulfide	10	0	No
Lead	0.6	0	No
PM_{10}	15	1.8	No
NOx	25	3.4	No
SOx	25	0.7	No
VOC	25	0.11.4	No

Notes:
a. MDAQMD Regulation XIII, Rule 1303 (B)(1)

TABLE 5.1-14 (REVISED 3/31/09)
NATURAL GAS BOILER SPECIFICATIONS

	Ivanpahs 1 & 2	Ivanpah 3
Make & Model	Nebraska boiler D-type NSX-G-120 or equivalent	Babcock Wilcox or equivalent
Fuel	Natural gas	Natural gas
Maximum Boiler Heat Input Rate	231.1 MMBtu/hr @ HHV	462.2 MMBtu/hr @ HHV
Steam Production Rate	220,000 lb/hr	440,000 lb/hr
Stack Exhaust Temperature	430 °F	430 °F
Exhaust Flow Rate	78,538 acfm	157,076 acfm
Exhaust O_2 Concentration, dry volume	2.80%	2.80%
Exhaust CO_2 Concentration, dry volume	10.28%	10.28%
Exhaust Moisture Content, wet volume	17.58%	17.58%
Emission Controls	Low-NOx Burner (9.0 ppmvd NOx @ 3% O_2); combustion controls (4.0 ppmv CO; 2.012.6 ppmv VOC @ 3% O_2)	

TABLE 5.1-17 (REVISED 3/31/09)
MAXIMUM HOURLY EMISSION RATES: BOILERS

Pollutant	ppmvd @ 3% O_2	lb/MMBtu	lb/hr
	Ivanpah 1 & 2 (each)		
NOx	9.0	0.011	2.5
SO_2[a]	1.7	0.003	0.8
CO	25.0	0.018	4.2
VOC	~~1.4~~12.6	~~0.00060~~0.0054	~~0.1~~1.2
PM_{10}	n/a	0.007	1.7
	Ivanpah 3		
NOx	9.0	0.011	5.0
SO_2[a]	1.7	0.003	1.3
CO	25.0	0.018	8.5
VOC	~~1.4~~12.6	~~0.00060~~0.0054	~~0.3~~2.5
PM_{10}	n/a	0.007	3.4

a. Based on maximum natural gas sulfur content of 0.75 grains/100 scf.

REVISIONS TO IVANPAH SEGS AFC TABLES

TABLE 5.1-18
MAXIMUM EMISSIONS FROM NEW EQUIPMENT

	Pollutant				
Emissions/Equipment	NOx	SO_2	CO	VOC	PM_{10}
Maximum Hourly Emissions					
Boilers	10.0	2.6	16.9	~~6.65.0~~	6.8
Emergency Engines	41.8	0.1	6.6	1.7	0.6
Diesel Fire Pump Engines	0.0	0.0	0.0	0.0	0.0
Total, pounds per hour	51.8	2.7	23.5	~~2.25.7~~	7.4
Maximum Daily Emissions					
Boilers	40.0	10.3	67.7	~~2.219.6~~	27.4
Emergency Engines	167.0	0.1	13.5	3.3	1.2
Diesel Fire Pump Engines	7.0	0.0	1.0	0.8	0.1
Total, pounds per day	214.0	10.4	82.2	~~6.324.3~~	28.7
Maximum Annual Emissions					
Boilers	2.6	0.7	4.4	~~0.31.3~~	1.8
Emergency Engines	4.2	0.3	0.3	0.1	0.0
Diesel Fire Pump Engines	0.2	0.0	0.0	0.0	0.0
Total, tons per year	7.0	1.0	4.7	~~0.31.4~~	1.8

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 *IVANPAH SOLAR ELECTRIC GENERATING SYSTEM*

DOCKET NO. 07-AFC-5

PROOF OF SERVICE
(Revised 4/16/09)

APPLICANT

Solar Partners, LLC
John Woolard,
Chief Executive Officer
1999 Harrison Street, Suite #500
Oakland, CA 94612

Steve De Young, Director
Project Manager
Ivanpah SEGS
Environmental, Safety
and Health
1999 Harrison Street, Ste. 2150
Oakland, CA 94612
sdeyoung@brightsourceenergy.com

APPLICANT'S CONSULTANTS

John L. Carrier, J. D.
2485 Natomas Park Dr. #600
Sacramento, CA 95833-2937
jcarrier@ch2m.com

COUNSEL FOR APPLICANT

Jeffery D. Harris
Ellison, Schneider
& Harris L.L.P.
2600 Capitol Avenue, Ste. 400
Sacramento, CA 95816-5905
jdh@eslawfirm.com

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

Tom Hurshman,
Project Manager
Bureau of Land Management
2465 South Townsend Ave.
Montrose, CO 81401
tom_hurshman@blm.gov

Sterling White, Field Manager
Bureau of Land Management
1303 South Highway 95
Needles, CA 92363
sterling_white@blm.gov

Becky Jones
California Department of
Fish & Game
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

INTERVENORS

California Unions for Reliable
Energy ("CURE")
Tanya A. Gulesserian
Marc D. Joseph
Adams Broadwell Joseph &
Cardozo
601 Gateway Boulevard, Ste 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com

*Gloria Smith, Joanne Spalding
Sidney Silliman, Sierra Club
85 Second Street, 2nd Fl.
San Francisco, CA 94105
gloria.smith@sierraclub.org
joanne.spalding@sierraclub.org
gssilliman@csupomona.edu
E-mail Preferred

Joshua Basofin, CA Rep.
Defenders of Wildlife
1303 J Street, Ste. 270
Sacramento, CA 95814
jbasofin@defenders.org

ENERGY COMMISSION

JEFFREY D. BYRON
Commissioner and Presiding
Member
jbyron@energy.state.ca.us

JAMES D. BOYD
Vice Chairman and
Associate Member
jboyd@energy.state.ca.us

Paul Kramer
Hearing Officer
pkramer@energy.state.ca.us

John Kessler
Project Manager
jkessler@energy.state.ca.us

Dick Ratliff
Staff Counsel
dratliff@energy.state.ca.us

Elena Miller
Public Adviser
publicadviser@energy.state.ca.us

I

DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on April 20, 2009, I served and filed copies of the attached MDAQMD's FDOC for ISEGS. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[www.energy.ca.gov/sitingcases/ivanpah]. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

__x__ sent electronically to all email addresses on the Proof of Service list;

__x__ by personal delivery or by depositing in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

___ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-5
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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

Original Signature in Dockets
Hilarie Anderson