



Mojave Desert Air Quality Management District

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Eldon Heaston, Executive Director

DOCKET

07-AFC-5

DATE DEC 03 2008

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December 3, 2008

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

Re: Final Decision/Determination Ivanpah Solar Electric Generating System

Dear Mr. Caswell:

The Mojave Desert Air Quality Management District (District) has completed the final decision on the proposed Ivanpah Solar Electric Generating System to be located to the west of Ivanpah Dry Lake at the California/Nevada border. Enclosed please find the Final Decision/Determination document, prepared pursuant to District Regulation XIII.

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,

A handwritten signature in black ink, appearing to read "Alan De Salvio".

Alan De Salvio
Supervising Air Quality Engineer

enclosure

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

PROOF OF SERVICE (REVISED 7/14/08) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 12/5/08

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**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.

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.

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

The following summarizes equipment that is permissible 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

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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

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parcs 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 (NO_x) 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.

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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.

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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

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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;

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- 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 NO_x and volatile organic compounds (VOC), and particulate matter (PM₁₀) and its precursors NO_x, SO_x, 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?
PM10	15	1.8	No
NOx	25	3.4	No
SOx	25	0.7	No
VOC	25	0.1	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)			
<i>App No.</i>	<i>Equipment</i>				NOX & NMHC	SOX	CO	PM10	NOX & NMHC	SOX	CO	PM10
'00009315	Tier III (Ivanpah 1)	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

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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)			
<i>App No.</i>	<i>Equipment</i>				NOX & NMHC	SOX	CO	PM10	NOX & NMHC	SOX	CO	PM10
'00009316	Tier II (Ivanpah 1)	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)				
<i>App No.</i>	<i>Equipment</i>			NOX	SOX	CO	TSP	TOG	NOX	SOX	CO	TSP	TOG
'00009311	NSX-G-120 (Ivanpah I)	1460	4	10	3	17	7	1	3650	934	6176	2497	204
'00009314	NSX-G-120 (Ivanpah 2)	1460	4	10	3	17	7	1	3650	934	6176	2497	204
'00009320	Unknown (Ivanpah 3)	1460	4	20	5.16	33.84	13.68	1.08	7300	1883	12352	4993	394
Total Lbs/Day				40	10	68	27	2	14600	3752	24703	9986	803
									Tons/Year				
									7	2	12	5	0

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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 NO_x, and monitor SO₂, NO_x, 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.

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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

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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-NO_x 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.

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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	O2Lb/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	0.0006	0.1 (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 bases, 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:

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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	O2Lb/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	0.0006	0.3 (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 bases, 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.

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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.

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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 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,

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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**

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**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

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).~~*

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**sierra
research**

1801 J Street
Sacramento, CA 95811
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Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

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 1 & 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

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**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE
STATE OF CALIFORNIA**

APPLICATION FOR CERTIFICATION
FOR THE *IVANPAH SOLAR ELECTRIC
GENERATING SYSTEM*

DOCKET No. 07-AFC-5

PROOF OF SERVICE
(Revised 7/14/08)

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-5
1516 Ninth Street, MS-15
Sacramento, CA 95814-5512
docket@energy.state.ca.us

APPLICANT

Solar Partners, LLC
John Woolard, Chief Executive Officer
Alicia Torre, Project Manager
1999 Harrison Street, Suite #500
Oakland, CA 94612
ATorre@BrightSourceEnergy.com

*Steve De Young
Ivanpah Solar Electric Generating System
Director, Environmental, Safety and Health
1999 Harrison Street, Ste. 2150
Oakland, CA 94612
sdeyoung@brightsourceenergy.com

APPLICANT'S CONSULTANTS

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INTERVENORS

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ENERGY COMMISSION

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jbyron@energy.state.ca.us

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

DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on December 05, 2008, I deposited copies of the attached Ivanpah Solar Electric Generating System (07-AFC-5) Final 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.

OR

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
Hilarie Anderson