



September 28, 2004

Roger Kohn,
Environmental Protection Agency
Region 9,
Air Division, AIR-3
75 Hawthorne St.,
San Francisco, CA 94105

Dear Mr. Kohn:

Pursuant to Rule 900 of the Imperial County Air Pollution Control District (ICAPCD) Rules and Regulations, the Air Pollution Control Officer (APCO) has made a preliminary decision for Renewal of Title V Operating Permit to ORMAT Nevada, Inc., Heber Geothermal Company and Heber Field Company, located at 895 Pitzer Road, Heber, CA. Heber Geothermal Company and Heber Field Company compose a geothermal power plant. This facility has been determined as a major source of emissions of benzene, a hazardous air pollutant, in amounts that exceed 10 tons per year. The facility also has the potential to emit methane, a pollutant regulated under Section 112(r) of the Clean Air Act, in amounts that exceed the major source threshold of 100 tons per year. The Title V Operating Permit includes conditions to ensure that all Federal, State and District requirements will be satisfied.

The DRAFT Title V Renewal Operating Permit No. V-1641 for ORMAT Nevada, Inc. has completed its 30-day District public review period on May 07, 2004. ORMAT Nevada, Inc. submitted comments requesting some changes to the DRAFT Title V Renewal Operating Permit. Attached is a copy of comment letter, District response to comments letter, proof of publication notice, DRAFT Title V Renewal Operating Permit and DRAFT Engineering Review.

The District is requesting your review and comments you may have on this DRAFT Title V Renewal Operating Permit. If you have any questions or would like more information about the Renewal Operating Permit or Engineering Review documents, please contact me or Jesus A. Ramirez, APC Engineer, at (760) 482-4606.

Sincerely,

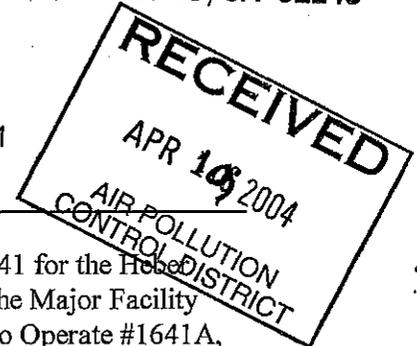

Brad Poiriez
APC Senior Manager
ICAPCD

BP/jar

RUSSELL ASSOCIATES Memorandum

DATE: April 16, 2004
TO: Sergio Cabanas
FROM: Stu Russell
RE: Review of Renewal of Title V Operating Permit V-1641

IMPERIAL COUNTY APCD
150 SOUTH 9TH ST
EL CENTRO, CA 92243



I have reviewed the March 30, 2004 draft Title V Operating Permit V-1641 for the Heber Geothermal Company and Heber Field Company, the public notice, and the Major Facility Permit Review. I have also reviewed the amended conditions for Permit to Operate #1641A, which you sent me April 12, 2004.

The draft Title V permit is almost identical to the existing Title V permit. The only changes that I found are:

1. Changing the name to ORMAT Nevada, Inc. and other administrative updates.
2. Substitution of C. B. Jackson for GTW4 in the list of observation wells.
3. Updating of the adoption dates for Rules 117, 403, 405, and 900.
4. Substituting the condition numbers of PTO 1641A for those of PTO 1641.
5. Changing the sampling of benzene and ammonia in the condensate line from quarterly to annual. The benzene content of the noncondensable gas line is still quarterly. This is a change that we requested.
6. Clarifying that the Hot Spots analyses shall be conducted "per the requirements of AB2588 Air Toxic "Hot Spots" Program." This clarification is an improvement and allows for years when no new sampling is required.

The draft Title V permit, however, does not address Condition 5 in the revised PTO 1641A. This condition prohibits the release of air contaminants as dark or darker than Ringlemann No. 1 (20% opacity) for a period of more than 3 minutes in any hour. The district reports that Condition 5 was added when the cooling tower replacement was approved in October 2000. This seems to be a new federally enforceable condition and, as such, would need to be added to Section II (Emissions Limits) of the Title V permit. Some way of monitoring compliance would need to be established (observation seems appropriate), and reporting (probably annual) would be required. Thus, the draft Title V permit needs revision.

The Major Facility Permit Review has a number of minor problems and, in places, seems to be inconsistent with the draft Title V permit. These changes are as follows:

1. Covanta Geothermal Operations is listed as an alternate company name. It should be deleted. The Introduction (page 3) makes 4 additional references to Covanta, and another reference is at the top of page 10. These references should be changed to ORMAT Nevada, Inc.
2. Greg Griffith's phone number is (760) 337-8872, in my list of contacts.
3. Page 3, 4th paragraph: PTO# V-1641 was issued on January 6, 1999, not January 5.
4. Page 4, 4th paragraph: The cooling tower was replaced in February 2002, not October 2001, which was when the District approved the application.
5. Page 10, 7th paragraph: Does this conclusion apply to the noncondensable gas line? The final sentence is inconsistent with the draft permit. The draft Title V permit changes the monitoring frequency of the condensate line to quarterly, but the noncondensable gas line is as originally permitted.
6. Page 11, 3rd paragraph. The conclusion says that the language should not change, but the proposed language has a slight change, which addresses our concerns.
7. Page 14, 3rd paragraph: Change "will be" to "was" in the first and second sentence. Condition D was amended in 1999 and the public notice was published when the permit was noticed that year.
8. Page 16, 2nd paragraph. The proposed calculation does not account for the pollutants in the condensate that mix with the circulating water and are emitted in the drift. These amounts will be smaller than the amounts of particulates, which are less than 0.3 lb/hr. If these need to be included, change the compliance calculation to "Compliance with this limit will be determined by multiplying the maximum design process rate of the cooling tower, in gallons per minute, by the drift rate of the cooling tower, and the sum of the concentrations of total dissolved solids, hydrogen sulfide, and ammonia in the circulating water (ppm)." Add the following sentence: "The oxidation rate obtained from the most recent source test for the cooling tower exhaust will be used to evaluate the sulfur compounds in the condensate." The cooling tower testing showed that 86% of the hydrogen sulfide in the condensate was oxidized in the cooling tower. The oxidized portion is sulfates and other sulfur compounds.
9. Page 16, 3rd paragraph: Delete the last sentence. The oxidation rate for hydrogen sulfide could apply to the calculation of "particulates" in the drift (see above), but does not need to be used in this calculation of "air contaminants." The proposed calculation of air contaminants uses the "total mass of liquid emitted in the drift droplets," which includes any oxidized hydrogen sulfide (sulfur compounds) in the condensate.
10. Page 17, 5 Monitoring and Reporting Schedule: This is inconsistent with the draft Title V permit renewal. The Monitoring and Reporting of benzene in the noncondensable gas line is quarterly. The Monitoring and Reporting of benzene and ammonia in the condensate should be listed as annual, to be consistent with the draft permit.
11. Page 19, Fees: The 2002 emissions totals are not consistent with the data reported in the quarterly reports or with the data reported on page 10 of this document. We show

2002 emission of 15.9 tons/year for hydrogen sulfide and 7.8 ton/year for benzene. Page 10 of this document shows the same amount for benzene. Thus, the emissions fee is \$693.46. The supplemental fee is still zero.



September 28, 2004

Mr. Sergio Cabañas,
Environmental Specialist
ORMAT Nevada, Inc.
947 Dogwood Road,
Heber, CA 92249

SUBJECT: ORMAT Nevada, Inc. Draft Title V Renewal Operating Permit No. V-1641

Dear Mr. Cabañas:

Thank you for your comments on this Draft Title V Renewal Operating Permit No. V-1641. Our response follows the general outline in the memorandum submitted by Stu Russell of Russell Associates, ORMAT Nevada, Inc. consultant, dated April 16, 2004.

Regarding the address of Condition 5 of District Permit No. 1641A on the Draft Title V renewal, which states the prohibition of release of air contaminants as dark or darker than Ringlemann No. 1 (20% opacity) for a period or periods of more than 3 minutes in any hour, this district rule is addressed on the draft Title V Renewal under Condition II.1 Emission Limits, Opacity.

In addition, the following is the outline of the memorandum, which references the Major Facility Permit Review unless otherwise noted:

1. References to Covanta Geothermal Company instead of ORMAT Nevada, Inc.

Per your request, all the references to Covanta Geothermal Company have been deleted and have been addressed to ORMAT Nevada, Inc.

2. Gregory Griffith's phone number.

The phone number in our records for the facility is (760) 353-9630. The phone number addressed in the memorandum, (760) 337-8872, must be a direct line to Gregory Griffith.

3. Issue date of Title V permit. (Draft Title V Operating Permit)

The original issue date for Title V Permit No. V-1641 was January 05, 1999 and was signed by Stephen L. Birdsall, Air Pollution Control Officer on January 06, 1999.

4. Replacement date of cooling tower.

The referenced date of October 2001 for the replacement of the cooling tower was the time the permit modification application was received at the District.

5. Analysis of Benzene in non-condensable/condensable lines.

An inconsistency was found on the draft permit, Condition IV.3. The condition shall continue as in the original permit which states "The permittee shall conduct analysis of benzene content in the cooling tower non-condensable gas line and benzene and ammonia content in the condensate line on a quarterly basis, starting in the first quarter of 1999. The cooling tower shall be sampled at the port along the non-condensable gas flow line and the port along the condensate line from the hot well. This source test may be conducted in conjunction with IV.2. During the source test the mass flow rate at both lines shall be recorded and submitted with the report. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

6. Reference to AB2588 Toxic Hot Spots Program

The proposed language for draft permit, Condition IV.6 "The permittee shall conduct the following analysis per the requirements of AB2588 Air Toxic "Hot Spots" Program.", has been revised, and will continue as in the original permit which states "The permittee shall conduct the following analyses."

7. Change of paragraph wording in reference to permit amendments.

The second paragraph of VII. Statement of Basis, 2. Authority to Construct Permit Requirement Exemption, has been revised and now states " The ATC Permit 1500A Condition D has been amended following the District's NSR procedures. Public notice of this amendment was published along with the Operating Permit."

8. Calculations Revision

The third paragraph of VII. Statement of Basis, 3. Quantity of Emissions, has been revised and now states " Compliance with this limit will be determined by multiplying the maximum design process rate of the cooling tower, in gallons per minute, by the drift rate of the cooling tower, and the sum of the concentrations of total dissolved solids, hydrogen sulfide and ammonia in the circulating water (ppm). The oxidation rate obtained from the most recent source test for the cooling tower exhaust shall be used to evaluate the sulfur compounds in the condensate."

9. Oxidation Rates

The fourth paragraph of VII. Statement of Basis, 3. Quantity of Emissions, has been revised and the last sentence of the paragraph has been deleted, and now states "The oxidation rate obtained from the most recent source test for the cooling tower exhaust will be used to evaluate the H₂S emissions in the condensate."

10. Monitoring and Reporting Schedule

Condition VII Statement of Basis, 5. Monitoring and Reporting Schedule, Permit Condition IV.3 and V.3, has been revised. The reporting will remain as in the original permit, which is a quarterly requirement. The Draft Title V Permit has been revised to reflect a quarterly reporting.

11. Supplemental Annual Fee

IX. Supplemental Annual Fee has been revised and now reflects the correct 2002 emission inventory of 15.9 tons/year for hydrogen sulfide and 7.8 tons/year for benzene.

The District, in addition, conducted revisions in the Draft Title V Renewal Operating Permit No. V-1641 wording on two paragraphs:

1. V.2 Reporting Requirements has been revised and the sentence "The report shall be submitted before the end of July and January of each operating year, starting in July 1999" has been deleted, and now states "One report shall be postmarked by January 31 of each year that covers the period from July 1 through December 31 of the previous calendar year, and one report postmarked by July 31 that covers the period from January 1 through June 30 of each calendar year."
2. VIII.1 Compliance, Compliance Certification has been revised and the sentence "These reports shall be submitted by the end of February of each preceding operating year" has been deleted, and now states "These reports shall be postmarked by February 28 of each year and that covers the previous calendar year"

If you have any questions regarding this letter, please contact me or Jesus A. Ramirez, APC Engineer, at (760) 482-4606.

Sincerely,



Brad Poiriez
APC Senior Manager

**PROOF OF PUBLICATION
(2015.5 C.C.P.)**

STATE OF CALIFORNIA

County of Imperial

I am a resident of the County aforesaid;
I am over the age of eighteen years, and
not a party to or interested in the above
entitled matter. I am the principal clerk*
of the printer of the

IMPERIAL VALLEY PRESS

a newspaper of general circulation,
printed and published daily in the City of
El Centro, County of Imperial and which
newspaper has been adjudged a
newspaper of general circulation by the
Superior Court of the County of Imperial,
State of California, under the date of
October 9, 1951, Case Number 26775;
that the notice, of which the annexed is
a printed copy, has been published in
each regular and entire issue of said
newspaper and not in any supplement
thereof on the following dates, to-wit:

April 7, 2004

all in the year 2004.

I certify (or declare) under penalty of
perjury that the foregoing is true and
correct.

Justin C. [Signature]
SIGNATURE

* Printer, Foreman of the Printer, or
Principal Clerk of the Printer

Date 9-16 2004
at El Centro, California.

This space is for the County Clerk's
Filing Stamp:

Proof of Publication of:

**NOTICE OF PRELIMINARY DECISION FOR RENEWAL OF TITLE V
OPERATING PERMIT V-1641 FOR ORMAT NEVADA INC., HEBER
GEOHERMAL COMPANY AND HEBER FIELD COMPANY**

Pursuant to Rule 900 of the Imperial County Air Pollution Control District (ICAPCD) Rules and Regulations, the Air Pollution Control Officer (APCO) has made a preliminary decision to renew Title V Operating Permit to ORMAT Nevada, Inc., Heber Geothermal Company and Heber Field Company, located at 895 Pitzer Road, Heber, California. Heber Geothermal Company and Heber Field Company compose a geothermal power plant. This facility has been determined as a major source of emissions of benzene, a hazardous air pollutant, in amounts that exceed 10 tons per year. The facility also has the potential to emit methane, a pollutant regulated under Section 112(r) of the Clean Air Act, in amounts that exceed the major source threshold of 100 tons per year. The Title V Operating Permit includes conditions to ensure that all Federal, State and District requirements will be satisfied.

You have an opportunity to submit comments on this Permit, and request that ICAPCD hold a Public Hearing on the Permit. Written comments regarding the proposed decisions will be received by the District for a period of thirty (30) days after publication of this notice.

The application and supporting documentation may be examined at the Air Pollution Control District Office, 150 South Ninth Street, El Centro, CA 92243.

Permit No. V-1641
DRAFT 03/30/2004
REVISED 09/28/2004

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT

150 S. Ninth Street
El Centro, CA 92243
(760) 482-4606

TITLE V OPERATING PERMIT

Issued in Accordance with the Provisions of 40 CFR Part 70
and Rule 900 of the Imperial County Air Pollution Control District

Company Name: ORMAT Nevada, Inc.
Facility Name: Heber Geothermal Company and Heber Field Company.
SIC Code: 4911 (Electric Services)
Source Type: Geothermal Power Facility
Plant Location: 895 Pitzer Road, Heber, CA 92249
Mailing Address: 947 Dogwood Road, Heber, CA 92249
Responsible Official: J. Gregory Griffith, General Manager
Plant Site Contact: Sergio Cabañas, Environmental Specialist
Telephone: (760) 353-9630

Issued by:

Stephen L. Birdsall
Air Pollution Control Officer

Date

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Equipment Listing

I. Dual-Flash Geothermal Power Plant

1. Turbine Generator

Manufacturer: Mitsubishi Heavy Industries
Equipment Description: 52 MW (gross) dual-entry double flow 5-stage turbine.
Maximum Design Process rate: 8.2×10^6 lbs/hr geothermal fluid.
Additional Equipment: Surface Condenser, High and low pressure tanks.

2. Cooling Tower

Manufacturer: Marley Cooling Tower Company
Equipment Description: Five-cell counter-flow design, PVC Filling, each cell equipped with a Fan, 250 HP motor.
Maximum Design Process Rate: 85,000 gallons/min.

II. Geothermal Wells

Equipment Description: Production, Injection, and Observation Wells.
Production Wells: HGU5, HGU6, HGU7, HGU8, HGU9, HGU10, HGU11, HGU12, HGU13, HGU14, HGU16.
Injection Wells: HGU50, HGU51, HGU52, HGU53, HGU54, HGU55, HGU56, HGU57, HGU71, HGU72.
Observation Wells: GTW1, GTW2, GTW3, GTW5, GTW6A, Hulse 1, C.B. Jackson, J.D. Jackson, Murdy 1, Nowlin 1, Thompson 1, Thompson 2.

Permit Conditions

- I. General Permit Conditions
 1. The permittee shall obtain an Authority to Construct permit prior to the modification or replacement of any equipment for which a Permit to Operate has been granted, and prior to the installation and operation of any equipment for which an Authority to Construct is required. **Imperial County Air Pollution Control District (ICAPCD) Rule 201, Permits Required, adopted 10/15/79.**
 2. No air contaminant shall be released into the atmosphere which causes a public nuisance. **ICAPCD Rule 117, Nuisances, adopted 02/21/72.**
 3. Compliance with Permit Conditions
 - a. The permittee shall comply with all permit conditions;
 - b. This permit does not convey property rights or exclusive privilege of any sort;
 - c. Non-compliance with any permit conditions is ground for permit termination, revocation and re-issuance, modification, enforcement action, or denial of permit renewal;
 - d. The permittee shall not use the "need to hold or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit conditions;
 - e. A pending permit action or notification of an anticipated non-compliance does not stay any permit condition;
 - f. Within a reasonable time period, Permittee shall furnish any information requested by the air pollution control officer (APCO) of ICAPCD, in writing, for the purpose of determining: 1) compliance with the permit, 2) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action. **ICAPCD Rule 900.F.2.k, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

II Emission Limits

1. Opacity

The permittee shall not release or discharge into the atmosphere from any single source or emission, any air contaminant as dark or darker as designated as No. 1 on the Ringlemann Chart (20% opacity) for a period or periods aggregating more than three (3) minutes in any hour. **ICAPCD Rule 401, Opacity of Emissions, adopted 11/19/85.**

2. Quantity of Emissions

The permittee shall not release or discharge air contaminants into the atmosphere from any single processing unit source or other contrivance, in excess of 0.01 grains per cubic foot of gas at standard conditions. **ICAPCD Rule 403, Quantity of emissions, adopted 07/24/01.**

3. Sulfur Compounds Emissions

The permittee shall not release into the atmosphere from any single source of emission, sulfur compounds, calculated as sulphur dioxide (SO₂) in excess of 0.2 percent by volume, measured at the point of discharge. **ICAPCD Rule 405, Sulfur Compounds, adopted 09/14/99.**

4. Sulfur Contents of Fuels

The permittee shall not burn any fuel oil No. 2 at any stationary equipment having a sulfur content in excess of 0.5 percent by weight. **ICAPCD Rule 405, Sulfur Compounds, adopted 09/14/99.**

5. Geothermal Power Plant

The total facility wide hydrogen sulfide emissions shall not exceed 250 pounds per day. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1641A, Condition 6.**

6. Geothermal Wells

Hydrogen sulfide emissions shall not exceed 10 pounds per hour during three or more distinct hourly periods within any calendar year. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1500A, Condition B.**

III. Operational Limits

1. Geothermal power plant shall employ Best Available Control Technology (BACT) for hydrogen sulfide abatement if those emissions calculated from monitoring exceed 250 pounds per day from the entire plant operation. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1641A, Condition 6.**
2. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners in Subpart B:
3. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR Part 82.156.
 - a. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR Part 82.158.
 - b. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR Part 82.161. **40 CFR Part 82, Protection of Stratospheric Ozone.**

IV. Monitoring, Testing, and Analysis

1. The ICAPCD or any agency authorized by the ICAPCD shall be permitted to sample emissions from the source or sources. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1641A, Condition 8.**

2. The permittee shall conduct analysis of hydrogen sulfide content in the cooling tower non-condensable gas line and condensate line on a monthly basis, starting January 1999. The cooling tower shall be sampled at the port along the non-condensable gas flow line and the port along the condensate line from the hot well. During the source test the mass flow rate at both lines shall be recorded and submitted with the report. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1641A, Condition 8.**
3. The permittee shall conduct analysis of benzene content in the cooling tower non-condensable gas line and benzene and ammonia content in the condensate line on a quarterly basis, starting in the first quarter of 1999. The cooling tower shall be sampled at the port along the non-condensable gas flow line and the port along the condensate line from the hot well. This source test may be conducted in conjunction with IV.2. During the source test the mass flow rate at both lines shall be recorded and submitted with the report. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
4. The permittee shall conduct analysis of hydrogen sulfide for each well on an annual basis. Each well shall be sampled at a point prior to delivery or emission to the atmosphere. Analysis for each well shall be conducted during the last quarter of the year, starting in 1999. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1500A, Condition D.**
5. Laboratory analysis shall use EPA approved methods. Test for emissions of hydrogen sulfide shall be conducted using U.S. EPA Method 11 or any other EPA Method approved by the District. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
6. The permittee shall conduct the following analysis'. First source test shall be conducted during 1998 and every four years thereafter. All analysis' results shall be available at the facility for inspection.
 - a. Of turbine condenser condensate and cooling tower blowdown for: ammonia, arsenic, beryllium, cadmium, chromium, copper, hydrogen sulfide, lead, manganese, mercury, nickel, radon, selenium, and zinc.

- b. Of the non-condensable gases vented for: hydrogen sulfide, ammonia, benzene, arsenic, mercury, radon, toluene, and xylene. **AB2588, Toxic Hot Spots Program {State and District Only}**.

V. Reporting Requirements

1. The permittee shall report any deviation from requirements in this Permit to Operate, other than deviations reported to the District pursuant to the District Upset/ Breakdown rule, to the APCO within 2 days of occurrence. The permittee shall use District approved forms to report any deviations. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
2. The permittee shall submit a written monitoring report to the ICAPCD every six months. One report shall be postmarked by January 31 of each year that covers the period from July 1 through December 31 of the previous calendar year, and one report postmarked by July 31 that covers the period from January 1 through June 30 of each calendar year. The report shall identify any deviations from permit requirements, including those previously reported to the APCO. All reports of a deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. The permittee shall use District's approved forms for the report regarding deviation from permit requirements and shall also include a written statement from the responsible official which certifies the truth, accuracy, and completeness of the report. When no deviations have occurred for the quarter, such information shall be stated in the report. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
3. The permittee shall submit to the ICAPCD a quarterly emission report of hydrogen sulfide and benzene based on analyses conducted pursuant to the requirements of Sections IV.2 and IV.3. The report shall be submitted within the first month of the following operating quarter, starting in the first quarter of 1999. Hydrogen sulfide and benzene emissions shall be reported in lb/hr. **ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

4. The permittee shall demonstrate compliance with condition II.2, Quantity of Emissions, based on analysis conducted pursuant to condition IV.2 and IV.3. A report shall be submitted to the ICAPCD quarterly. The report shall be submitted within the first month of the following operating quarter, starting in the first quarter of 1999. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

5. The permittee shall demonstrate compliance with condition II.3, Sulfur Compounds Emissions, based on analysis conducted pursuant to condition IV.2. A report shall be submitted to the ICAPCD quarterly. The report shall be submitted within the first month of the following operating quarter, starting in the first quarter of 1999. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

6. The permittee shall submit to the ICAPCD an annual report containing the analysis conducted pursuant to the requirements of section IV.4. The report shall include the date, time, and the total hours of venting to the atmosphere of each production well. The facility shall demonstrate compliance with condition II.6 based on the most recent mass flow rate determination, conducted by tracer dilution techniques. This report shall be submitted to the ICAPCD by the end of February of the following operating year. **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1500A, Condition E.2, and Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

7. The permittee shall submit to the ICAPCD an annual report by the end of February of the following operating year. This report shall include the following items:
 - a. Types and quantities of cooling tower additives;
 - b. Net electrical megawatt-hour sold for the report year;
 - c. For each standby stationary i.c. engine used: the total hours of operation for each engine, and the total fuel used by each engine.

- d. The status of all active wells associated with this facility used for production or injection during the report year. For each well include the total days of rig activity (work over, clean out or drilling). **ICAPCD Rule 207, New Source Review, adopted 11/10/80, ATC Permit 1500A, Condition E.2, and Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
8. The permittee shall submit to the ICAPCD a report containing all the items listed below. First report shall be submitted at the end of February 1999 and every four years thereafter.
 - a. Analyses conducted pursuant to the requirements of Section IV.6 above;
 - b. Based on analyses conducted in Section IV.6 and the emissions derived from the analyses, an emission inventory for the facility. **AB2588, Toxic Hot Spots Program {State and District Only}.**
9. The permittee shall submit a written report to the ICAPCO within ten calendar days after a breakdown occurrence has been corrected. This report shall include: a) a statement that the occurrence has been corrected, together with the date of correction and proof of compliance; b) the reason(s) or cause(s) of the occurrence; c) a description of the corrective measures undertaken; and d) the type of emission and estimated quantity of the emissions caused by the occurrence. **ICAPCD Rule 111.D, Equipment Breakdown, adopted 12/11/79.**
10. The sulfur content of the fuel oil No. 2 shall be tested in accordance with the most current American Society for Testing and Materials (ASTM) methods. The fuel oil No. 2 sulfur content shall be verified by one of the following methods:
 - a. A representative sample of each batch of the fuel oil No. 2 received shall be analyzed for its sulfur content; or
 - b. A certification of analysis on the sulfur content shall be obtained for the fuel oil No. 2 delivered by the supplier. **ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

VI. Record keeping Requirements

1. Records of all monitoring and support information shall include the following: 1) date, place, and time of measurement or maintenance activity; 2) operating conditions at the time of measurement or maintenance activity; 3) date, place, name or company or entity that performed the measurement or maintenance activity and the methods used; and 4) results of the measurement or maintenance. **ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
2. Records of all required monitoring data and support information shall be retained for at least five years from date of initial entry. **ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

VII. Emergency Provisions

1. The permittee shall notify the ICAPCD of any upset conditions, breakdown or schedule maintenance which cause a violation of emission limitations prescribed by District Rules and Regulations, or by State law. The District shall be notified as soon as reasonably possible but not later than two (2) hours after its detection. The completion of corrective measures or the shut down of emitting equipment is required within 24 hours of occurrence of a breakdown condition. **ICAPCD Rule 111.A, Equipment Breakdown, 12/11/79.**
2. If the breakdown condition will either require more than 24-hours to correct or persist longer than the end of the production run (except for continuous monitoring equipment, for which the period shall be ninety-six (96) hours), the owner or operator may, in lieu of shutdown, request the Air Pollution Control Officer to commence the emergency variance procedure. **ICAPCD Rule 517, Emergency Variance, adopted 10/11/79 {State and District only}.**

3. Within two weeks of an emergency event, the operator shall submit to the District a properly signed, contemporaneous log or other relevant evidence which demonstrates that: a) an emergency occurred; b) Permittee can identify the cause(s) of the emergency; c) the facility was being properly operated at the time of the emergency; d) all steps were taken to minimize the emissions resulting from the emergency; and e) within two working days of the emergency event, the permittee provided the District with a description of the emergency and any mitigation or corrective actions taken. **ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**
4. In any enforcement proceeding, the permittee has the burden of proof for establishing that an emergency occurred. **ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

VIII. Compliance

1. Compliance Certification

The permittee shall submit compliance certification reports to the U.S.EPA, Director, Air Division, 75 Hawthorne Street, AIR-3, San Francisco, CA 94105 and the APCO every 12 months. These reports shall be postmarked by February 28 of each year and that covers the previous calendar year. The reports shall include the following requirements: a) identify the basis for each permit term or condition and a means of monitoring compliance with the term or condition; b) the compliance status and method(s) used to determine compliance for the current time period and over the entire reporting period; and c) any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to sections 114(a) and 504(b) of the CAA. The permittee shall use District approved forms for the compliance certification and shall also include a written statement from the responsible official which certifies the truth, accuracy, and completeness of the report. **ICAPCD Rule 900.F.2.n, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

2. Risk Management Plan

This stationary source, as defined in 40 CFR Part 68.3, is subject to Part 68, the Accidental Release Prevention regulations. This stationary source shall submit a Risk Management Plan (RMP) by the date specified in Part 68.10. This stationary source shall certify compliance with the requirements of part 68 as part of the annual compliance certification as required by 40 CFR Part 70 or 71. **40 CFR Part 68.3, Risk Management Plan.**

IX. Right of Entry

1. The Regional Administrator of United States Environmental Protection Agency (U.S. EPA), the Executive Officer of the California Air Resources Board, the APCO, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises:
 - a. To inspect the stationary source, including equipment, work practices, operations, and emissions-related activity; and
 - b. To inspect and duplicate records required by this Permit to Operate; and
 - c. To sample substances or monitor emissions from the source or other parameters to assure compliance with the permit or applicable requirements. Monitoring of emissions can include source testing. **ICAPCD Rule 900.F.2.j, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

X. Severability

1. The provisions of this Permit to Operate are severable and if any provisions of this Permit to Operate are held invalid, the remainder of this Permit to Operate shall not be affected thereby. **ICAPCD Rule 900.F.2.m, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

XI Permit Life

1. This Permit to Operate shall become invalid five years from the date of issuance unless a timely and complete renewal application is submitted to the District. The permittee shall apply for renewal of this permit no earlier than 18 months before the date of expiration. Upon submittal of a timely and complete renewal application, this permit to operate shall remain in effect until the APCO issues or deny the renewal application. **ICAPCD Rule 900F.2.o, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

XII. Payment of Fees

1. The permittee shall remit the Title V annual fee to the District in a timely basis. Failure to remit fees on a timely basis shall result in forfeiture of this Permit to Operate. Operation without a Permit to Operate subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to section 502(a) of the Clean Air Act. **ICAPCD Rule 900F.2.p, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.**

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IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT

**150 S. Ninth St.,
El Centro, CA 92243
(760) 482-4606**

Title V Permit to Operate Renewal Review

Major Facility Permit Review

Permit #:	V-1641
Company Name:	ORMAT Nevada, Inc.
SIC Code:	4911 (Electric Services)
Facility Names:	Heber Geothermal Company and Heber Field Company
Source Type:	Geothermal Power Plant and Well Field
Location:	895 Pitzer Road, Heber, CA 92249
Mailing Address:	947 Dogwood Road, Heber, CA 92249
Responsible Person:	J. Gregory Griffith, General Manager (760) 353-9630
Contact Person:	Sergio Cabañas, Environmental Specialist
Permit Reviewer:	Jesus A. Ramirez / Harry Dillon / Reyes Romero

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I. Introduction

Pursuant to Rule 900, of the Imperial County Air Pollution Control District Rules and Regulations, the District intends to renew the Title V Operating Permit to ORMAT Nevada, Inc. This company operates Heber Geothermal Company (HGC) and Heber Field Company (HFC). The facilities operate under District permit numbers 1641A and 1500A. The facilities will continue to operate under Title V Operating Permit number 1641. The Operating Permit will include conditions to ensure that all Federal, State and District requirements are satisfied.

Sergio Cabañas, Environmental Specialist for ORMAT Nevada, Inc. submitted a Title V Permit Renewal application on June 25, 2003, for ORMAT Nevada, Inc., PTO # V-1641, for the Heber Geothermal Company and Heber Field Company facilities, located at 895 Pitzer Road, Heber, CA.

The Imperial County Air Pollution Control District (ICAPCD) is responsible for implementing all applicable federal, state and local air pollution control requirements which affect any stationary source of air pollution in Imperial County. The County is currently designated as a PM-10 moderate non-attainment area for the state ambient air quality standards.

The issuance of the Title V permit for ORMAT Nevada, Inc. satisfies the permit issuance requirements of the ICAPCD's Rule 900. Specifically, this permit serves as a renewal of the initial permit for this facility, PTO # V-1641, issued on January 05, 1999, as well as the APCD permit reevaluation.

II. Description of the Source

Heber Geothermal Company and Heber Field Company have been in operation since 1985. The steam/brine production and transportation are supplied by HFC. HGC is a dual-flash-cycle geothermal power plant rated at 52 MW (gross), 47 MW(net). Electrical power generation is accomplished by bringing hot brines to the surface via production wells for extraction of heat and further re-injection of the residual brine.

The Heber brine, produced from wells of the HFC, has a salt content of approximately 14,000 ppm and dynamic wellhead pressure and temperature of approximately 25 to 60 psig and 250-300°F. The steam/brine source of supply consists of 11 slant-drilled wells. The wells are drilled to a depth of 6,000 to 10,000 ft.

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Upon entry into the plant, the two-phase flow of brine and steam enters the auxiliary flash tank. Within this vessel, the first crude separation of the high-pressure steam from the high-pressure brines takes place by gravimetric means. From mirrored outlets of the auxiliary flash tank, both the steam and the brine are separated into two 50 percent capacity trains. The high-pressure steam enters a pair of high-pressure flash tanks. The steam flows down an internal pipe and exits from the bottom of the high-pressure flash tanks and is conveyed to the turbine high-pressure steam inlets.

High-pressure brine is removed from the bottom of the auxiliary flash tank and flows through hot water collecting tanks to the low-pressure flash tanks. The hot water collecting tanks act primarily as small surge vessels for stabilizing the pressures and brine levels in the high-pressure portion of the flash system. The pressure drops from the high-pressure system to the low pressure system and hence "flashing" occurs. Two wells, HGU 13 and 14, are linked directly to the low-pressure flash tanks. The low-pressure steam flows through a manifold of steam lines for admission to the turbine.

The steam turbine, manufactured by Mitsubishi Heavy Industries (MHI), is a dual-entry double-flow design with five stages of rotating blades in each flow direction and a rated output of 52 MW. The exhausted steam is directed down into the condenser installed directly under the turbine/generator unit.

The heat rejection system for the power plant is a conventional closed loop recirculating water system, using a surface condenser and mechanical draft cooling tower. The induced draft cooling tower is five-cell counter-flow design. In October 2001, due to excessive wear and loss of structural integrity, a replacement for the cooling tower was initiated with a near identical replacement. A new unit, a Marley 85,000 gpm, 5 cell counter-flow cooling tower, PVC filled that utilizes the film cooling heat transfer mechanism, was installed on February 2002. Five 250 HP fans provide the updraft for the tower. Makeup water to the cooling tower is obtained from irrigation canals during peak generating hours and from the condensers hot well during non-peak hours and on holidays and weekends.

Brine from the low-pressure flash tank flows by gravity to the brine return surge tanks below the flash tanks. The brine is pumped across the northern edge of the plant site to injection wells.

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III. Permit Renewal Revisions

This permit renewal consolidates Administrative Permit Amendments (Name Change, Transfer of Ownership, and update of Revised Rules) and a Minor Permit Modification (Replacement of Cooling Tower) issued for this facility since issuance of PTO # V-1641. Revisions to the permit indicate that no Significant Modifications are considered necessary.

Minor Permit Modifications

PTO	Permit Description	Permit issue date
1641A	Replace 87,300 gpm Custodys Ecodyne Catrell 5 cell cooling tower, counter-flow design, PVC filling, each cell equipped with a 200 HP motor; with a 85,000 gpm Marley Cooling Tower Company 5 cell cooling tower, counter-flow design, PVC filling, each cell equipped with a 250 HP motor.	October 04, 2001

Administrative Permit Amendments:

Reference	Description
Company Name	Modification from Ogden Geothermal Operations, Inc. to Covanta Geothermal Operations, Inc., and as of December 18, 2003, to ORMAT Nevada, Inc.
Responsible Officer	Modification from Robert C. Sones to J. Gregory Griffith
Equipment Listing II. Observation Wells	Modification of observation well GTW4 to observation well C.B. Jackson.

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<p>General Permit Conditions I.3.f</p>	<p>Modification of ICAPCD Rule 900.F.2.k, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.k, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Emission Limits II.2</p>	<p>Modification of ICAPCD Rule 403, Quantity of Emissions, adopted 11/19/85; to revised ICAPCD Rule 403, Quantity of Emissions, adopted 07/24/01.</p>
<p>Emission Limits II.3</p>	<p>Modification of ICAPCD Rule 405, Sulfur Compounds, adopted 11/19/85; to revised ICAPCD Rule 405, Sulfur Compounds, adopted 09/14/99.</p>
<p>Emission Limits II.4</p>	<p>Modification of ICAPCD Rule 126, Sulfur Contents of Fuels, adopted 11/09/82; to revised ICAPCD Rule 405, Sulfur Compounds, adopted 09/14/99.</p>
<p>Monitoring, Testing, Analysis IV.3</p>	<p>Modification of ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.e, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Monitoring, Testing, Analysis IV.5</p>	<p>Modification of ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.e, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.1</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>

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<p>Reporting Requirements V.2</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.3</p>	<p>Modification of ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.e, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.4</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.5</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.6</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Reporting Requirements V.7.d</p>	<p>Modification of ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.g, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>

<p>Reporting Requirements V.10.b</p>	<p>Modification of ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.e, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Recordkeeping Requirements VI.1</p>	<p>Modification of ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.f, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Recordkeeping Requirements VI.2</p>	<p>Modification of ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.f, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Emergency Provisions VII.3</p>	<p>Modification of ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.I, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Emergency Provisions VII.4</p>	<p>Modification of ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.I, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>
<p>Compliance VIII.1</p>	<p>Modification of ICAPCD Rule 900.F.2.n, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.n, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.</p>

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Right of Entry IX.1.c	Modification of ICAPCD Rule 900.F.2.j, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.j, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.
Severability X.1	Modification of ICAPCD Rule 900.F.2.m, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.m, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.
Permit Life XI.1	Modification of ICAPCD Rule 900.F.2.o, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.o, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.
Payment of Fees XII.1	Modification of ICAPCD Rule 900.F.2.p, Procedures for Issuing Permits to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 12/14/93; to revised ICAPCD Rule 900.F.2.p, Procedures for Issuing Permit to Operate for Sources Subject to Title V of Federal CAA Amendments of 1990, adopted 06/26/01.

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In addition, ORMAT Nevada, Inc. is requesting revisions to the permit (Minor Permit Modifications) as follows:

- I Condition IV.3 states that the permittee shall conduct analysis of benzene content in the cooling tower non-condensable gas line and benzene and ammonia content in the condensate line on a quarterly basis.

The permittee is requesting that analysis of benzene in the condensate line be performed on an annual basis instead of a quarterly basis. Analysis of the benzene in the condensate line have been less than 0.025 lb/hr. More than 99.4% of the benzene monitored at the facility has been found in the non-condensable gas line.

Based on quarterly emissions reports since 1999, on analysis conducted by Thermochem, an independent laboratory hired by ORMAT Nevada, Inc., it has been found that less than 1% of the benzene monitored has been found in the condensate line.

Annual emissions of benzene have been determined to have a downward trend (18.8 ton/yr in 1999, 11.8 ton/yr in 2000, 7.6 ton/yr in 2001, and 7.8 ton/yr in 2002), and are within the 25 tons/yr of total HAP emissions.

In addition, the permittee is also requesting that analysis of ammonia in the condensate line be performed also on an annual basis instead of a quarterly basis. Ammonia is not a designated HAP and is found in the steam at concentrations of 0.005% or less, which are below the 20% threshold for aqueous ammonia under Section 112(r) of the Clean Air Act.

Since the inception of the original permits to operate for Heber Geothermal Company and Heber Field Company, periodic emissions monitoring requirements were established, and based on factors pertaining to the monitoring (time consuming, economic burden, accurateness of results and other factors), it was determined that quarterly emission monitoring was the most appropriate frequency for testing. In addition, since the facility does not have a constant emission rate and also has the potential to emit or exceed 10 tons/year of benzene, which is the threshold for hazardous air pollutants (HAP), and thus making it a mandatory Title V permit holder, the District sustains that periodic emission monitoring be contended as originally intended, to be conducted on a quarterly basis for benzene content in the cooling tower non-condensable gas line and benzene and ammonia content in the condensate line.

- II The permittee states that Condition IV.6 is not a federal requirement, but incorporates testing under the AB2588 Toxic Hot Spots Program. The requirement for testing of the substances listed under this condition, many of which are found at near detection levels, should be consistent with that program. Under the California Air Resources Board Emissions Inventory Criteria and Guidelines Report (May 1997), some facilities, including HGC, do not have to perform additional analysis if there is no increase in device activity greater than 10%. The permittee is requesting that this condition shall be reworded to explicitly state that the testing and analysis should conform to the requirements of the California program.

The CARB Emission Inventory Criteria and Guidelines Report, Section IX. Source Testing and Emission Factors, A.(1) state that source testing shall be required for substances specified and in accordance with the measurement methods set forth therein, specifically ARB-adopted test methods shall be used to fulfill the source test requirements, or District approved methods.

The original concept of Condition IV.6 is based and referenced in the requirements of AB2588 Toxic Hot Spots Program, and as such, was included into the periodic emission monitoring requirements, therefore the District sustains that this operating condition remain as is, a source test conducted every four years.

IV. Air Emissions:

The geothermal plant has the following points of emission to the air: cooling tower non-condensable gases, cooling tower drift, and fugitive emissions from valves and flanges. The cooling tower gases are composed mostly of the following substances: carbon dioxide (approximately 82%), nitrogen (approximately 9%), and methane (approximately 4%). Less than 5% of the cooling tower gases contain regulated toxic substances; mostly ammonia (approximately 4%) and less than 1% hydrogen sulfide, benzene, mercury, radon, toluene, and xylene. The non-condensable gases are vacuumed from the condenser and routed to the cooling tower cells where the gases are dispensed to atmosphere. Some gases dissolved in the condenser's water can be oxidized to salts or possibly air stripped by the cooling tower.

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The condensate contains small amounts of brine carryover from incomplete phase separation in the flash train and H₂S and NH₃ which are soluble in water. The following substances have been detected in the circulating water: ammonia, hydrogen sulfide, manganese, and zinc. Since all of these substances are soluble in water, they are emitted as drift, with exemption of H₂S and ammonia which are emitted as gases. No detectable levels of arsenic compounds, beryllium, bromide compounds, cadmium compounds, chromium (hexavalent), copper, lead compounds, mercury, nickel, radon, and selenium compounds were found in the previous Toxic Hot Spots testing of the circulating water. The geothermal facility also maintains one standby fire pump, driven by a diesel engine.

V. Current Emission Status:

The Heber Geothermal Company and its wells have a potential to emit benzene, a hazardous air pollutant (HAP), in amounts that exceed 10 tons per year. The facility also has the potential to emit methane, a pollutant regulated under Section 112(r) of the CAA, in amounts that exceed the major source threshold of 100 tons per year.

VI. Applicable Requirements

According to the information submitted in the Title V application and the District review, the following are the Federal, State, and District requirements that apply to the facilities.

Applicable Requirement	Enforceability	Equipment Affected
Rule 111-Equipment Breakdown	Federal, District	All Equipment
Rule 117-Nuisances	Federal, District	All Equipment
Rule 201-Permits Required	Federal, District	All Equipment
Rule 202-Exemptions	Federal, District	All Equipment
Rule 207-Standards for Permit to Construct	Federal, District	All Equipment

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Rule 401-Opacity of Emissions	Federal, District	All Equipment
Rule 403-Quantity of Emissions	Federal, District	All Equipment
Rule 405-Sulfur Compounds	Federal, District	All Equipment
Rule 126-Sulfur Content of Fuels	Federal, District	Diesel Equipment
CAA Section 112(r), 40 CFR Part 68, Risk Management Plan	Federal, District	HGC
40 CFR, Part 82, Stratospheric Ozone Protection	Federal, District	Air Conditioning
Rule 900-Operating Permits	Federal, District	All Equipment
NSR ATC Permit 1641A Cond 6 - H ₂ S < 250 lbs/day Conds 1,2,3,4,5,7,8,9 Monitoring and Notification	Federal, District	HGC
	Federal, District	HGC
NSR ATC Permit 1500A Cond B - H ₂ S < 10 lbs/hr	Federal, District	HFC
Rule 111.B-Equipment Breakdown, Emergency Variance	State and District	All Facility
AB2588-Toxic Hot Spots Program	State and District	All Equipment

VII. Statement of Basis

The proposed Operating Permit renewal includes conditions to ensure that all Federal, State and District requirements will be satisfied. Additionally, the permit has been designed to have adequate monitoring, record keeping and reporting requirements to demonstrate continuous compliance with the permit conditions.

The following provides additional clarification regarding certain permit conditions.

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1. Authority to Construct 1500A Enforceability for HFC.

Original ATC permit was issued to Chevron Geothermal Company of California in December 4, 1986. New geothermal wells were included to the ATC permit in 1991 and the conditions of the ATC permit were amended to 1500A. This Permit was transferred to Heber Field Company in August 24, 1993. The amended ATC permit became federally enforceable because it consolidates the geothermal wells that are operated for Heber Geothermal Company.

2. Authority to Construct Permit Requirement Exemption.

Authority to Construct permit 1500A, condition D, requires Heber Field Company to conduct analysis of brine and steam for a list of 13 compounds. This requirement does not come from any Federal, State or SIP District regulation. The facility has requested exemption from this requirement based on the unnecessary and outdated status of this requirement (DRAFT California White Paper for Title V Implementation, October 25, 1995). The analysis of most of these compounds is required by the AB2588, the California toxic Hot Spots Program; however, these compounds will be monitored at other points of the process. Hydrogen sulfide is the only compound regulated by a federal or District limit, ATC permit 1500A, condition B. A partial exemption will be granted to Heber Field Company from condition D, ATC Permit # 1500A, to suspend the monitoring of 12 compounds. The facility will continue to conduct analysis of hydrogen sulfide as required by this condition.

The ATC Permit 1500A Condition D will be amended following the District's NSR procedures. Public notice of this amendment will be published along with the Operating Permit. Condition D was amended to read as follows:

- a) Heber Field Company shall conduct analysis of hydrogen sulfide for each well. Each well shall be sampled at a point prior to delivery or emission to the atmosphere. Analysis for each well shall be conducted on an annual basis.
- b) Hydrogen Sulfide Emission Limit for HGC.

Hydrogen sulfide is emitted to the atmosphere through the cooling tower and fugitive emissions from valves and flanges. Condition II.5 of the Operating Permit establishes a limit of 250 lb/day for total emission of hydrogen sulfide for HGC. Compliance with this limit will be monitored monthly.

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The exhausted steam from the turbine is transferred to the surface condenser where the gases will partition into the gas phase and condensate. The mass flow rate of hydrogen sulfide will be calculated as the sum of emissions from the non-condensable gas line and the condensate.

The majority of the gases are extracted from the condenser via the non-condensable gas line and transferred to the cooling tower; here, they mix with the air and water and are released to the atmosphere. The hydrogen sulfide emissions at this point will be quantified by multiplying the mass flow rate of non-condensable gases by concentration determined from the sample analysis.

A fraction of the hydrogen sulfide is expected to partition into the condensate. The condensate is used for the make up water to the circulating water system during the months of October through May and on weekends and holidays the rest of the year. Hydrogen sulfide in the condensate is emitted from the cooling tower as a gas. The rest of the year the condensate is discharged to the drain and not routed to the cooling tower. The hydrogen sulfide in the condensate is partially oxidized prior to being exolved from the circulating water. The hydrogen sulfide that partitions into the condensate is quantified by sampling the condensate line, measuring condensate flow, and using a factor to account for oxidation. The oxidation rate will be evaluated by source testing the cooling tower exhaust. The oxidation rate obtained from the most recent source test will be used. A source test was conducted to evaluate hydrogen sulfide oxidation rate on May 27 and 28, 1998 by Thermochem Laboratory and Consulting Services. The cooling tower exhaust was tested using Northern Sonoma County APCD Method 102 for determination of hydrogen sulfide content in geothermal power plant cooling towers. An oxidation rate for hydrogen sulfide of 86.66% was obtained.

The fugitive emissions from valves and flanges are not reported monthly due to the impracticability of quantifying this type of emissions.

3. Quantity of Emissions

Rule 403, Quantity of Emissions was revised on July 24, 2001. The previous rule prohibited the release of air contaminants into the atmosphere from any single processing unit in excess of 0.2 grains per cubic foot of gas. The revised rule states that a person shall not discharge into the atmosphere from any single emissions unit, air contaminants in excess of 0.01 grains per cubic foot in discharged gas calculated as dry gas at standard conditions. In addition, the definition of air contaminant, for the purposes of Rule 403, applies only to materials that are solid or liquid at standard conditions (60 degrees Fahrenheit, 760 mm Hg).

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Heber Geothermal Company processes up to 8.2 million lbs/hour of geothermal fluid. The emissions from the cooling tower include drift, droplets of circulating water entrained in the exhaust air flow. The majority of the cooling tower drift consists of water but some solids are dissolved in the flow of water through the cooling tower. The concentration of the total dissolved solids (TDS) in the blowdown is monitored on a weekly basis. The blowdown is taken from the circulating water and, on some days, is diluted by condensate. The blowdown measurement establishes the upper rate for the concentration of the solids in the cooling tower drift. The measured concentrations of TDS in the blowdown are always lower than 1,000 ppm.

The Quantity of Emissions limit is addressed in the Operating Permit by Condition II.2 and it will be monitored quarterly. This limit will apply to the release of Particulate Matter and Air Contaminants. The limit for Particulate Matter involves solids and liquids from the cooling tower which includes solids and liquids entrained in the non-condensable gases plus any volatile pollutants separated into the condensate (H_2S and NH_3) when condensate is used for the make up water. Compliance with this limit will be determined by multiplying the maximum design process rate of the cooling tower, in gallons per minute, by the drift rate of the cooling tower, and the total dissolved solids in the circulating water (ppm).

The limit for Air Contaminants applies to the release of solids or liquids emitted in the drift droplets of the cooling tower. The vast majority of emissions are from the non-condensable gases, which are excluded from the requirements of Rule 403. Compliance of the total mass of liquids emitted in the drift droplets is determined by obtaining the number of Air Contaminants discharged by multiplying the maximum design process rate of the cooling tower, in gallons per minute, by the drift rate of the cooling tower. Since the cooling tower operates at atmospheric pressure at sea level, the calculated dry gas flow at standard conditions is obtained by multiplying the volume of wet exhaust gas/tower cell by total number of cells and the percent moisture in the wet exhaust flow at design conditions. The quantity of emissions of Air Contaminants is the result of dividing the number of grains/min discharged by the cubic feet/min dry gas flow at standard conditions. The oxidation rate obtained from the most recent source test for the cooling tower exhaust will be used to evaluate the H_2S emissions in the condensate.

4. Hydrogen Sulfide Emission Limit for HFC.

Operational wells will be occasionally vented to the atmosphere via the emergency vent stack or rock muffler. The steam delivery system provides for venting the wells via the emergency vent stack to heat-up the lines after shutdown of the wells due to unscheduled outages or scheduled maintenance. The geothermal wells are also vented via the rock

muffler due to over-pressure, a turbine trip, or plant shutdown. Emission of hydrogen sulfide due to venting of the geothermal wells will be limited to a maximum of 10 lb/hr during three or more distinct hourly periods within any calendar year. This limit is addressed in the Operating Permit by condition II.6. Each well will be sampled and analyzed for concentration of hydrogen sulfide on an annual basis.

The emission of hydrogen sulfide via the emergency vent stack will be calculated by multiplying the maximum steam flow rate in the line times the concentration determined from the sample analysis. The time during which the atmospheric venting of the wells occurred will be monitored and recorded in order to determine compliance. The steam flow rate will be calculated by re-measuring the hourly steam flow rate by tracer/dilution techniques. The steam flow rate obtained from the most recent test will be used.

Emissions of hydrogen sulfide due to atmospheric venting of the wells via the rock muffler will be calculated by multiplying the steam flow rate times the concentration determined from the sample analysis. The time during which the atmospheric venting of the wells occurred will be monitored and recorded in order to determine compliance.

5. Monitoring and Reporting Schedule.

The facility will comply with the following monitoring and reporting schedule:

Permit Condition	Description	Due Date
IV.2 and V.3	Monitoring (Monthly) and Reporting of H ₂ S (Cooling Tower)	Quarterly
IV.3 and V.3	Monitoring and Reporting of Benzene and Ammonia / Cooling Tower	Quarterly
IV.4 and V.6	Monitoring and Reporting of H ₂ S (Geothermal Wells)	Annually
IV.6 and V.8	Monitoring and Reporting of Several Compounds (Toxic Hot Spots Program)	Every Four Years
V.1	Report of any Deviation other than Breakdowns	Within 2 days

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V.2	Monitoring Report/Written Report	Every six Months
V.4	Report of Quantity of Emissions	Quarterly
V.5	Report of Sulfur Compounds Emissions	Quarterly
V.7	Operating and Production Report	Annually
V.9 and VII.1	Breakdown Notification (1) and Report (2)	(1) 2 hours (2) Within Ten Calendar Days
VIII.1	Compliance Certification Report	February of each Operating Year

VIII. Insignificant Activities

The following types of activities and emission units were exempted from the Title V permit requirements.

1. Diesel-driven equipment for well reworking, cleaning, and other maintenance activities in the HFC well field are considered non-road engines according to the definition on 40 CFR Part 89.2.
2. Three 250-gallon Diesel storage tanks. Rule 202.E.8.c exempts equipment used to store unheated organic liquid with an initial boiling point of 150°C or greater. The initial boiling point for diesel is 232°C.
3. Solvent cleaning stations. Rule 202.E.9.b exempts unheated nonconveyorized cleaning equipment with a surface area less than 1.0 sq.m., using organic solvents with an initial boiling point of 160°C or greater, and losing less than 25 gal/yr of solvent to the atmosphere. The solvent used at the cleaning station has an initial boiling point of 177°C, the area is smaller than 1 sq.m., and loses are less than 25 gal/yr.

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4. GM Detroit Crane, Model 8.21; mobile lighting; Lincoln welding unit. Rule 202.E.11 exempts routine maintenance and repair equipment.
5. Back up fire pump, 290 HP diesel driven engine. Fire suppression systems are considered trivial activities according to guidelines of Title V Operating Permit Program Submittal, attachment "C," of the ICAPCD.

IX. Supplemental Annual Fee

The supplemental annual fee for the facilities will be determined according to the guidelines of Rule 900.G. The supplemental annual fee will be calculated according to the following equation:

$$s = [\$ 29.26 \text{ per ton (CPI adjusted)} \times e] - f, \text{ where:}$$

s = supplemental annual fee in dollars
 e = fee-based emissions in tons per year

Actual rates of emissions for which fee-based emission schedule applies:

Hydrogen Sulfide (2002 inventory)	= 15.9 tons/yr
Benzene (2002 inventory)	= 7.8 tons/yr
Total	= 23.7 tons/yr

f = sum (in dollars) of annual fees under Regulation III and AB2588:

Heber Geothermal Company	= \$ 10,920.00
Heber Field Company	= \$ 5,776.00
AB2588	= \$ 108.00
TOTAL	= \$ 16,804.00

Total Emissions of Fee Pollutants:	23.7 tons/yr
Emissions of Fee Pollutants x \$ 29.26/ton:	\$ 693.46
Annual Fees under Reg.III and AB2588	\$ 16,804.00

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Estimated supplemental Title V Program Fee:	(693.46- 16,804.00) = \$ 0.00
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These calculations indicate that the annual fee paid by the facilities under Regulation III and AB2588 exceeds the emission fee pollutant schedule under Rule 900 therefore no supplemental fee is required.