GTHT - _____1_____

FINAL ORDER

YEAR(S):

May 29, 2009

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Monday, June 01, 2009 8:15 AM
To: Bonham, Sherry, EMNRD
Cc: VonGonten, Glenn, EMNRD; Michael Hayter; 'Jay Hamilton'; Jackson, Charles L., OSE
Subject: FW: Lightning Dock Geothermal Case No. 14246 Order No. 13127
Attachments: image001.gif; Case No. 14246 Order No. R-13127.pdf

Please find attached the approved order. I will begin addressing the order requirements in the final draft today.

I know there is one location where Los Lobos wants to drill in a different location. They should probably send in a new C-101 and 102 to get the new location approved.

The action steps going forward are:

1) OCD works to address final changes to discharge permit to be mailed to Los Lobos.
2) Los Lobos needs to submit bonds for all of their injection and production wells to me here in Santa Fe for review and a final approval letter.
3) Artesia District Office, once bonds are approved and is contacted by OCD Santa, Fe, will determine whether the APDs may be approved and signed.
4) Final discharge permit mailed to Los Lobos for signature and startup of operations.
5) Los Lobos will need to complete all proper "G" Forms and paperwork to demonstrate that there is indeed a high-temp. geothermal resource in the area, and after confirmation and submittal of the required geothermal forms, reporting, etc. must receive final approval by the OCD-EB in order to use each geothermal well. Note that once Los Lobos has proven that there is a high temperature geothermal reservoir for which it would like to proceed with geothermal power development, they will need to address any final issues with the OSE.

Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Friday, May 29, 2009 4:04 PM
To: Lucero, Stephen A., EMNRD
Cc: Hall, John, NMENV
Subject: Lightning Dock Geothermal Case No. 14246 Order No. 13127

Steve:

FYI, the order was approved. To view it, please go to: P:\OCD\Geothermal\Lightning Dock Geothermal- Animas NM\Order No. R-13127

John, I have attached the order for you. Thnx.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490

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Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

July 1, 2009

Mr. Steve Brown
Los Lobos Renewable Power, L.L.C.
5152 North Edgewood Drive, Suite 375
Provo, Utah 84604

RE: LOS LOBOS RENEWABLE POWER, L.L.C. - LIGHTNING DOCK GEOTHERMAL NO. 1 (HI-01) DISCHARGE PERMIT (GTHT-001) NE/4 SW/4 OF SECTION 7, TOWNSHIP 25 SOUTH, RANGE 19 WEST, NMPM, HIDALGO COUNTY, NEW MEXICO CLASS V INJECTION WELLS AND GEOTHERMAL PRODUCTION OR DEVELOPMENT WELLS, TOWNSHIP 25 SOUTH, RANGES 19 AND 20 WEST, NMPM, HIDALGO COUNTY, NEW MEXICO

Dear Mr. Brown:

Pursuant to the Water Quality Control Commission (WQCC) Regulations 20.6.2.3104 through 20.6.2.3114 NMAC (*Permitting and Ground Water Standards*) and 20.6.2.5000 through 20.6.2.5299 NMAC (*Underground Injection Control*), the Oil Conservation Division (OCD) hereby approves the discharge permit for of three (3) Class V geothermal injection wells and authorizes the operation of five (5) production or development wells for the Los Lobos Renewable Power, L.L.C. (**owner/operator**) for the above referenced site, contingent upon the conditions specified in the enclosed **Attachment 1 to the Discharge Permit**. The owner/operator of the geothermal power plant is located in the NE/4 SW/4 of Section 7, Township 25 South, Range 19 West, NMPM, Hidalgo County, New Mexico. The Class V geothermal injection wells and the production or development wells are located in Township 25 South, Ranges 19 and 20 West, NMPM, Hidalgo County, New Mexico.

Class V Injection Wells

Well 42-18 is located in the NE/4, NW/4 of Section 18 (1307 FNL and 2123 FWL)
Well 51-07 is located in the NW/4, NE/4 of Section 07 (169.2 FNL and 2406.9 FEL)
Well 53-12 is located in the SW/4, NE/4 of Section 12 (1574.8 FNL and 3350 FWL)

Geothermal Production or Development Wells

Well 13-07 is located in the SW/4, NW/4 of Section 7 (3781 FSL and 530 FWL)
Well 33-07 is located in the SE/4, NW/4 of Section 7 (3721 FSL and 1789 FWL)
Well 45-07 is located in the NE/4, SW/4 of Section 7 (2360 FSL and 2278 FWL)
Well 47-07 is located in the SE/4 SW/4 of Section 7 (1219 FSL and 2266 FWL)
Well 53-07 is located in the SW/4 NE/4 of Section 7 (3775 FSL and 3052 FWL)

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the Oil Conservation Division (OCD) Santa Fe Office within 30 days of receipt of this letter.**

Please be advised that approval of this permit does not relieve the owner/operator of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the owner/operator of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3490) or E-mail carlj.chavez@state.nm.us. On behalf of the staff of OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Mark Fesmire
Oil Conservation Division Director

MF/cc
Attachments - 1
xc: OCD District Office

ATTACHMENT 1
LIGHTNING DOCK GEOTHERMAL NO. 1 (HI-01) (GTHT-001)
DISCHARGE PERMIT APPROVAL CONDITIONS

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00 plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division (OCD) has received the required $100.00 filing fee and the $1700.00 Class V Geothermal Well permit fee.

2. **Permit Expiration and Renewal:** Pursuant to WQCC Regulation Paragraph 4 of Subsection H of 20.6.2.3109 NMAC, this permit is valid for a period of five years. **This permit will expire on August 4, 2014** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation Subsection F of 20.6.2.3106 NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act {Chapter 74, Article 6 NMSA 1978} and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the owner/operator must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by OCD pursuant to the Geothermal Resources Conservation Act (71-5-1 through 71-5-24 NMSA) and the Geothermal Power regulations (19.14.1 through 19.14.132 NMAC).

4. **Owner/Operator Commitments:** The owner/operator shall abide by all commitments submitted in its May 12, 2008 discharge permit application, including attachments and subsequent amendments and these conditions. Permit applications that reference previously approved plans on file with OCD shall be incorporated in this permit and the owner/operator shall abide by all previous commitments of such plans and these conditions for approval.

5. **Modifications:** WQCC Regulations Subsection C of 20.6.2.3107 NMAC, 20.6.2.3109 NMAC and Subsection I of 20.6.2.5101 NMAC address possible future modifications of a permit. The owner/operator (discharger) shall notify OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at WQCC Regulation 20.6.2.3103 NMAC is being or will be exceeded or if a toxic pollutant as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use or that the Water Quality Standards for Interstate and Intrastate streams as specified in WQCC Regulation 20.6.4 NMAC (*Water Quality Standards for Interstate and Intrastate Streams*) are being or may be violated in surface water in New Mexico.

6. **Waste Disposal and Storage:** The owner/operator shall dispose of all wastes at an OCD-approved facility. Only geothermal RCRA-exempt wastes (*i.e.*, geothermal production fluids, hydrogen sulfide abatement wastes from geothermal energy production, *etc.*) may be disposed of by injection in a Class II salt water disposal well. RCRA non-hazardous, non-exempt geothermal wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR part 261. Any waste stream that is not listed in the discharge permit application must be approved by OCD on a case-by-case basis.

A. **Disposal Of Certain Non-Domestic Waste At Solid Waste Facilities:** Pursuant to 19.15.35.8 NMAC disposal of certain non-domestic waste without notification to OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. **Waste Storage:** The owner/operator shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The owner/operator shall not store geothermal waste on-site for more than 180 days unless approved by OCD.

7. **Drum Storage:** The owner/operator must store drums, including empty drums, or drums containing materials other than fresh water on an impermeable pad with curbing. The owner/operator must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The owner/operator must store chemicals in other containers, such as tote tanks, sacks or buckets on an impermeable pad with curbing.

8. **Process, Maintenance and Yard Areas:** The owner/operator shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. **Above-Ground Tanks:** The owner/operator shall ensure that all aboveground tanks have impermeable secondary containment (*e.g.*, liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The owner/operator shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. **Labeling:** The owner/operator shall clearly label all tanks, drums and containers to identify their contents and other emergency notification information. The owner/operator may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by OCD prior to installation and must incorporate secondary containment with leak detection into the design. The owner/operator shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. Owner/operator must test all existing below-grade tanks and sumps without secondary containment and leak detection annually, or as specified herein. For all systems that have secondary containment with leak detection, owner/operator shall perform a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a registered professional engineer and approved by OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The owner/operator shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The owner/operator shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted or otherwise rendered non-hazardous to wildlife, including migratory birds. Where netting is not feasible, routine witnessing and/or discovery of dead wildlife and migratory birds shall be reported by the owner/operator to the appropriate wildlife agency with notification also provided to OCD in order to assess and enact measures to prevent the above from reoccurring.

D. The owner/operator shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The owner/operator shall report the discovery of any system which is found to be leaking or has lost integrity to OCD within 15 days. The owner/operator may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps or other OCD-approved methods. The owner/operator shall notify OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The owner/operator shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. The owner/operator shall submit a comprehensive listing of process/wastewater pipelines to OCD within three months of the date of the permit issuance. The owner/operator shall test pressure rated pipe by pressuring up to

one and one-half times the normal operating pressure, if possible or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure and pressure held for a minimum of 30 minutes with no more than a 1% loss/gain in pressure. The owner/operator may use other methods for testing if approved by OCD.

B. The owner/operator shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size and approximate location. All new underground piping must be approved by OCD prior to installation. The owner/operator shall report any leaks or loss of integrity to OCD within 15 days of discovery. The owner/operator shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The owner/operator shall notify OCD at least 72 hours prior to all testing.

13. Class V Wells: With the exception of Class V geothermal energy injection wells associated with the recovery of geothermal energy for heating, aquaculture, and production of electrical power, the owner/operator shall close all Class V wells (*e.g.*, septic systems, leach fields, dry wells, *etc.*) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic sanitary effluent wastes, unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject sanitary effluent and non-hazardous fluid into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. Class V wells that inject domestic sanitary effluent waste only must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The owner/operator shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The owner/operator shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The owner/operator shall report all unauthorized discharges, spills, leaks and releases and shall conduct corrective actions pursuant to WQCC Regulation 20.6.2.1203 NMAC and 19.15.29 NMAC. The owner/operator shall notify both OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days. The owner/operator shall notify OCD of any fire, break, leak, spill or blowout occurring at any geothermal drilling, producing, transporting, treating, and disposal or utilization facility in the State of New Mexico by the person operating or controlling the facility pursuant to 19.14.36.8 NMAC.

16. OCD Inspections: OCD may impose additional requirements on the facility and modify the permit conditions based on OCD inspections.

17. Storm Water: The owner/operator shall implement and maintain run-on and runoff plans and controls. The owner/operator shall not discharge any water contaminant that exceeds the WQCC standards specified in WQCC Regulations 20.6.2.3103 NMAC or 20.6.4 NMAC including

any oil sheen, in any storm water run-off. The owner/operator shall notify OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The owner/operator shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3103 NMAC (*Standards for Ground Water of 10,000 mg/L TDS Concentration or Less)* or 20.6.4 NMAC (*Water Quality Standards for Interstate and Intrastate Streams*) unless specifically listed in the permit application and approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The owner/operator shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000 through 20.6.2.4116 NMAC (*Prevention and Abatement of Water Pollution*). OCD may require the owner/operator to modify its permit for investigation, remediation, abatement and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement or to submit subsequent reports will constitute a violation of the permit.

20. Additional Site Specific Conditions - Water Quality Monitoring Program: The owner/operator shall implement the following water quality monitoring programs.

A. Aquatic Toxicity Testing: Prior to the startup of geothermal operations, the owner/operator shall conduct an aquatic toxicity test (ATT) on the Tilapia fish species present at the AmeriCulture aquaculture facility located down-gradient from the owner/operators proposed Class V injection well locations with all NALCO cooling-tower chemical constituents. The chemicals used in the ATT shall consist of the high range application of all mixed Nalco chemicals proposed during the hearing on December 1, 2008, to determine the LD_{50} under a worse-case scenario. OCD will use the results of the ATT as a tool to help assess the threat to Aquaculture and wildlife near the facility.

B. Ground Water and Surface Water Sampling and Monitoring Requirements:

i. The owner/operator shall submit a ground water monitoring program work plan that includes a well installation and monitoring plan and a sampling and analysis plan for the monitor wells to the OCD Santa Fe Office for approval at least 3 months before system startup. The owner/operator shall conduct all water quality monitoring using low-flow purging and sampling methods where monitor well screens do not exceed 15 feet with 5 feet of screen placed above the water table (potential for water table draw-down addressed at subpart 20(B)(iii)). If multiple isolated fresh water aquifers are found to exist, the owner/operator shall include a provision in the work plan for the installation of additional monitor wells

to monitor for contamination in any different fresh water aquifer system(s).

ii. The owner/operator shall submit a Background and Compliance Report reflecting the first 6 months of sampling conducted to the OCD within 30 days of completion of the first 6 months of sampling that includes the results of the initial sampling conducted in accordance with Permit Conditions 20 and 21 to determine background water quality conditions at the facility and compliance with WQCC 20.6.2.3103 NMAC and Subparagraph WW of 20.6.2.7 NMAC. The report shall specify all monitoring locations, including nested wells, hydrogeology, piezometric and/or potentiometric ground water flow direction, hydraulic gradient and water quality data from all monitoring locations and down-gradient locations from potential point sources at the facility (*i.e.*, cooling tower blow-down combined with spent production water at all Class V Well injection locations). The report shall note all exceedences of the standards specified in WQCC 20.6.2.3103 NMAC or background, or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, has been detected.

iii. The owner/operator shall implement the ground water monitoring program specified in the applicable Tables in Appendix 1. The owner/operator shall monitor static water levels from monitoring locations at least quarterly to assess ground water flow direction and hydraulic gradient at the facility. If draw-down of the water table below the screen level in any monitor well occurs at and/or nearby production or development well locations, the owner/operator shall deepen wells within 30 days to provide for monitoring and the OCD and Office of the State Engineer (OSE) District Supervisor shall be notified within 24 hours of having knowledge of the above. In addition, the Owner/Operator shall provide a written statement of whether the water resource in the Animas Valley is or is not adequate to sustain steady-state production of the geothermal resource within 60 days of the original notification above. The OCD and OSE may require the owner/operator to perform corrective action(s) to private water user wells that are adversely affected by geothermal operations. The OCD and/or OSE may require the owner/operator to implement corrective action(s) to private water wells depending on the situation.

iv. The owner/operator shall gauge and sample nested monitor well head elevations (accuracy to 0.01 ft.), recorded to establish the natural vertical hydrogeologic gradient(s) within the aquifer(s) or between reservoir(s) and to monitor for any potentially upwelling contamination to nearby down-gradient pumping domestic and commercial water supply wells.

v. The owner/operator shall comply with the Federal Underground Injection Control requirements for Class V Wells (40 CFR 144 subpart G) and WQCC 20.6.2 NMAC injection well construction standards to protect the Underground Source of Drinking Water (USDW). The owner/operator shall immediately shut down the system and contact the OCD for further instructions if the concentration of any water contaminants in the injection fluids exceed the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background, as established for the injection formation at the injection well location pursuant to Clause (i) of Paragraph 21.D, or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, is detected.

vi. The owner/operator shall construct all monitor wells with at least 15 feet of screen with 10 feet of screen positioned below the water table (~ 60 – 70 feet bgs). The screen slot size must facilitate the collection of low turbidity samples. Low-flow ground water sampling may be used with stabilization monitoring for temperature, oxygen reduction potential (ORP) and dissolved oxygen (DO) prior to and during sample collection, if wells are constructed for low-flow sampling techniques. Otherwise, the owner/operator shall purge the wells of three well volumes prior to sampling.

vii. The owner/operator shall triangulate seasonal piezometric surface flow across the facility, including surveying all well locations (TOC and ground elevations, Mean Sea Level) to the nearest 0.01 feet. The owner/operator shall measure static water levels at least quarterly for 2 years to determine ground water flow direction. The owner/operator shall submit plots of ground water flow direction with estimates of hydraulic gradients from quarterly monitoring.

viii. The owner/operator shall notify the Santa Fe OCD office immediately after having knowledge that the concentration of a monitor well sample exceeds the greater of the water quality standards specified in WQCC 20.6.2.3103 NMAC or background established at that well's location pursuant to the monitoring program described in this paragraph or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, is detected. In the event of an exceedence, the owner/operator may be required to shut down the operation for such time as may be necessary to allow the owner/operator and OCD to investigate the cause of the exceedence. If the cause is associated with geothermal operations, the OCD may invoke the permit modification provision for treatment provided herein, and may require additional conditions.

C. Water Supply Wells Monitoring Program:

i. The owner/operator shall sample all water supply wells in accordance with Table 3 of Appendix 1 prior to owner/operator startup to establish background water quality conditions and thereafter at least annually to demonstrate that the water quality of the water supply wells does not exceed the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background, and that no toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, is present.

ii. The owner/operator shall determine the depth to water, ground elevation, and well elevation to an accuracy of 0.01 foot.

iii. The owner/operator shall notify the OCD Santa Fe office within 72 hours of its determination that the concentration of the ground water sample exceeds the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background, or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, is detected.

D. Holding Ponds, Drainage Ditches, Pits and Ponds Monitoring Program: The owner/operator shall sample the holding ponds, drainage ditches, pits and ponds in accordance with Table 4 of Appendix 1. The owner/operator shall notify the OCD Santa Fe office within 72 hours of its determination that the concentration of a water sample taken at an unlined ditch or location listed above exceeds the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background. *Note: Table 4 analytes consist of metals and general chemistry only. They do not monitor for "toxic pollutants" as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC.*

E. Spent Produced Water and Cooling-Tower Blow-Down Water Monitoring Program:

i. The owner/operator shall submit a flow diagram to the OCD Santa Fe Office that depicts where the comingled spent produced water and cooling-tower blow-down water will be sampled in-line before injection, as well as specification of injection well sample port locations used for the in-line sampling at least 30 days before system startup.

ii. The owner/operator shall sample and analyze the comingled spent produced water and cooling-tower blow-down water daily for 10 business days at system startup, weekly for two months, and thereafter the sampling frequency shall be based on correlation that the owner/operator established with the 3D Tresar Control Monitoring System in accordance with Table 5 of Appendix 1 to this discharge permit. Injection wells shall be sampled

monthly for 6 months in accordance with the analytical suite in Table 2 of Appendix 1.

iii. The owner/operator shall inject comingled spent produced water and cooling-tower blow-down water only if it meets either the standards for ground water specified at Subparagraph WW of 20.6.2.7 NMAC and 20.6.2.3103 NMAC or the background concentration as established from the first sampling event. In-line sample ports or devices shall be installed at each injection well to enable owner/operator to perform the in-line sampling required herein, to ensure that the specified requirements for spent produced water and cooling-tower blow-down water are met.

iv. The owner/operator shall not discharge untreated chemicals to storm water and/or "Waters of the State." Any discharge to a rip-rap area(s) is an illegal discharge. The owner/operator shall inform the OCD Santa Fe office within 72 hours of discovery of a discharge to a rip-rap basin. Discharges shall be routed to lined pits or evaporation pond areas whenever possible.

v. The owner/operator may only discharge into "Waters of the State" in accordance with a National Pollutant Discharge Elimination System (NPDES) Permit issued by EPA Region 6. The OCD must approve the discharge concurrently with EPA. The applicant must comply with all of the Federal NPDES monitoring, treatment, and reporting requirements specified in its NPDES permit.

F. **Annual Water Quality Monitoring Program Report:** The owner/operator shall submit an Annual Water Quality Monitoring Program Report by January 31 of each year. The report shall include the following information:

i. Cover sheet marked as "Annual Water Quality Monitoring Program Report, name of owner/operator, Discharge Permit Number, API number(s) of well(s), date of report and the name of the person submitting report.

ii. Comprehensive summary of all water quality monitoring data.

iii. Summary charts and tables depicting the constituents that have ever exceeded the standards specified in WQCC 20.6.2.3103 NMAC or background, or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, has been detected.

iv. Description and reason for any remedial or work on well(s), ponds, ditches, *etc.*

v. Copies of the chemical analyses in accordance with Permit Condition 20.

vi. A copy of any leaks and spills reports submitted in accordance with Permit Condition 15 above.

vii. A "Miscellaneous" section to include any other issues that should be brought to OCD's attention.

viii. Discharge Permit Signatory Requirements pursuant to WQCC Regulation Subsection G of 20.6.2.5101 NMAC.

21. Class V Geothermal Injection Wells and Geothermal Production or Development Wells:

A. Well Identification:

i. **Class V Geothermal Injection Wells:**

Well No. 42-18 (API No. 30-023-20018)
Well No. 51-07 (API No. 30-023-20020)
Well No. 53-12 (API No. 30-023-20019)

ii. **Geothermal Production or Development Wells:**

Well No. 13-07 (API No. 30-023-20013)
Well No. 33-07 (API No. 30-023-20014)
Well No. 45-07 (API No. 30-023-20015)
Well No. 47-07 (API No. 30-023-20016)
Well No. 53-07 (API No. 30-023-20017)

B. Well Casing and Cementing Requirements:

i. The owner/operator shall ensure that all casing and cementing meets or exceeds the requirements of 19.14.27.8 NMAC (*Casing and Cementing Requirements*). Conductor pipe shall be run to a minimum depth of 100 feet.

ii. Surface casing shall be to a depth of at least 100 feet greater than the deepest fresh water well within one-half mile from the well location.

iii. Intermediate strings shall be cemented solid to surface.

iv. Production casing shall either be cemented solid to the surface or lapped into intermediate casing, if run. If production casing is lapped into an intermediate string, the casing overlap shall be at least 50 feet. The lap shall be cemented solid and it shall be pressure tested to ensure integrity.

v. The owner/operator shall submit a logging program to OCD for review with the owner/operator depth setting recommendations for its casing program based on the logging program. The owner/operator prior to setting intermediate or production casing in each of the production and injection wells shall run open-hole logs, pursuant to the logging program, approved by the OCD. Logs must be submitted to the OCD for review with the applicant's recommendations for casing setting depths, and in case of injection wells, for precise definition of the injection interval. The type of tubing installed shall be conducive to the characteristics of the injected fluids determined after initial testing of the injected fluids. The owner/operator shall ensure that the tubing is installed with a packer set within 100 feet of the uppermost injection perforations. The casing-tubing annulus shall be filled with an inert fluid, and a gauge or approved leak-detection device shall be connected to the annulus to detect for leakage in the casing, tubing or packer.

C. Formation Fracturing Fluids: The owner/operator shall ensure that all fluids used in the fracturing of formations shall not harm human health, wildlife or the environment. The owner/operator shall ensure that all fluids used to fracture shall be swabbed back, collected and properly disposed.

D. Class V Geothermal Injection Wells and Geothermal Production/ Development Wells Monitoring Program:

i. The owner/operator shall sample the groundwater at all injection and production/development wells prior to owner/operator startup in accordance with Table 2 of Appendix 1 to establish background water quality conditions.

ii. The owner/operator shall sample cooling tower effluent (and not the groundwater) at all injection wells monthly for the first six months with dynamic water level (DWL) recordings in accordance with Table 2 of Appendix 1 to demonstrate that the injection fluid meets the standards specified in WQCC 20.6.2.3103 NMAC or background, and that no toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, has been detected.

iii. If after the first six months the owner/operator demonstrates that the in-line injection well samples meet the standards specified in WQCC 20.6.2.3103 NMAC or background, and that no toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, has been detected, then the owner/operator shall then sample ground water annually in accordance with the other annual monitoring events.

iv. The owner/operator shall determine the depth to water, ground elevation, and well elevation to an accuracy of 0.01 foot. The owner/operator shall notify the OCD Santa Fe office within 72 hours of its determination that the concentration of the ground water sample exceeds the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background, or if any toxic pollutant, as defined in WQCC Subparagraph WW of 20.6.2.7 NMAC, is detected.

E. Well Workover Operations: The owner/operator shall obtain OCD's approval prior to performing remedial work, pressure test or any non-routine work. The owner/ operator shall request approval on form G-103 *"Sundry Notice"* pursuant to 19.14.52 NMAC, with copies provided to both the OCD Artesia District II Office and the Santa Fe Office.

F. Production/Injection Method: The production/injection method that the owner/operator shall follow is as follows: High temperature (>250 °F) geothermal water shall be brought to surface from the Horquilla Formation or geothermal reservoir at approximately 3,400 feet below ground level by five (5) production or development wells at approximately 3,000 gpm per well. Hot water shall be routed in parallel and in series through approximately 50 binary cycle (self-contained heat exchanger, evaporator and condenser) power generation units. Condensed produced or effluent water (approximately 225 °F) shall be routed directly to three (3) Class V geothermal wells and into the same depth within the Horquilla Formation or geothermal reservoir.

G. Well Pressure Limits: The owner/operator shall ensure that the operating surface injection and/or test pressure for each injection well measured at the wellhead shall be at a flow rate and pressure (psi) that will not exceed 0.2 psi per foot of depth from the surface to the top of injection interval, unless the owner/operator secures OCD approval for an increase based on demonstration that the increase will not involve a hazard of formation fracture and/or adversely affect public health, the environment and the correlative rights of any geothermal operators in the high temperature geothermal reservoir. The Owner/Operator shall report the intended maximum injection pressure to the Division for approval after testing the injection formation and prior to the commencement of injection in accordance with Form G-112. Re-injected fluids shall be confined to the aquifer where production is occurring and shall not adversely impact another aquifer(s). The owner/operator shall have working pressure limiting devices or controls to prevent overpressure. The owner/operator shall report any pressure that causes damage to the system to OCD within 24 hours of discovery.

H. Mechanical Integrity Testing: At least once every five years and after any well work over, the geothermal reservoir will be isolated from the casing or tubing annuals and the casing pressure tested at a minimum of 600 psig for 30 minutes.

A passing test shall be within +/- 10% of the starting test pressure. All pressure tests must be performed in accordance with the testing schedule shown below and witnessed by OCD staff unless otherwise approved.

Testing Schedule:

2009: Prior to system start-up, a 30 minute casing pressure test at a minimum of 600 psig (set packer above casing shoe to isolate formation from casing), and

2013: A 30 minute casing pressure test at a minimum of 600 psig (set packer above casing shoe to isolate formation from casing)

I. **Capacity/Reservoir Configuration and Subsidence Survey:** The owner/operator shall provide information on the size and extent of the geothermal reservoir and geologic/engineering data demonstrating that continued geothermal extraction will not cause surface subsidence, collapse or damage to property or become a threat to public health and the environment. This information shall be supplied to OCD in each annual report. OCD may require the owner/operator to perform additional well surveys, tests, etc. A subsidence monitoring section is required in the annual report and shall include well top-of-casing and ground elevation surveying (Accuracy: 0.01 ft.) before start-up and on an annual basis in order to demonstrate that there are no subsidence issues. If the owner/operator cannot demonstrate the stability of the system to the satisfaction of OCD, then OCD may require the owner/operator to shut-down, close the site and properly plug and abandoned the wells. ***The owner/operator shall report any subsidence to the OCD Santa Fe office within 24 hours of discovery.***

J. **Production/Injection Volumes:** After placing a geothermal well on production, the owner/operator shall file in duplicate a monthly production report form G-108, with the OCD Santa Fe office by the 20th day of each month and also with the annual reports. The owner/operator shall also document the production from each well and each lease during the preceding calendar month.

K. **Analysis of Injection and Geothermal Reservoir Fluids:** After placing any well on injection in a geothermal resources field or area, the owner/operator shall file in duplicate a monthly injection report, form G-110, with the OCD Santa Fe office by the 20th day of each month and also with the annual report. The owner/operator shall specify the zone or formation into which injection is being made, the volume injected, the average temperature of the injected fluid and the average injection pressure at the wellhead.

L. **Area of Review (AOR):** The owner/operator shall report within 24 hours of discovery of any new wells, conduits or any other device that penetrates or may

penetrate the injection zone within one-quarter mile from a Class V Geothermal Injection Well. *Note: AOR applies specifically to Class V Injection Wells.*

M. **Annual Geothermal Temperature and Pressure Tests:** The owner/operator shall test its production or development wells at least annually and submit the results to the OCD Santa Fe office on form G-111 within 30 days of the completion of the test. The owner/operator shall record the flowing temperatures and flowing pressure tests at the wellhead for a minimum of 72 hours of continuous flow at normal producing rates. The owner/operator shall then shut in the well for 24 hours and record the shut-in pressures at the wellhead. The owner/operator shall submit the results of these tests in duplicate to the OCD Santa Fe office.

N. **Loss of Mechanical Integrity:** The owner/operator shall report to the OCD Santa Fe Office within 24 hours of its discovery of any failure of the casing, tubing or packer or movement of fluids outside of the injection zone. The owner/operator shall cease operations until proper repairs are made and the owner/operator receives OCD approval to re-start injection operations.

O. **Bonding or Financial Assurance:**

i. Class V Geothermal Injection Wells: The owner/operator shall maintain at a minimum a cash bond (*i.e.*, Assignment of Cash Collateral Deposit or Multi-Well Cash Financial Assurance Bond Geothermal Injection) in the amount of $50,000.00 to restore the site and/or plug and abandon wells, pursuant to OCD rules and regulations.

ii. Geothermal Production or Development Wells: The owner/operator shall maintain at a minimum a cash bond (*i.e.*, $10,000.00 Multi-Well (4 wells) and/or $5,000.00 (1 well) Geothermal Plugging Bonds). If warranted, OCD may require additional financial assurance for closure of the power plant or facility (see Permit Condition 34 below).

P. **Annual Geothermal Well Report:** The owner/operator shall submit an Annual Geothermal Well Report by January 31 of each year. The report shall include the following information:

i. Cover sheet marked as "Annual Geothermal Well Report, name of owner/operator, Discharge Permit Number, API number(s) of well(s), date of report and the name of the person submitting report.

ii. Comprehensive summary of all geothermal well operations, including description and reason for any remedial or work on the well(s). The

owner/operator shall include copies of the form G-103s that it submitted to the OCD Santa Fe office.

iii. Production and injection volumes in accordance with Permit Condition 21.J, including a running total to be carried over each year. The owner/operator shall report the total mass produced, dry steam produced, flow rates, temperatures and pressures, average injection pressures, temperatures, *etc.*

iv. A copy of the chemical analyses in accordance with Permit Condition 21.K.

v. A copy of any mechanical integrity test chart, including the type of test, (*i.e.*, EPA 5-Year casing test), date, time, *etc.*, in accordance with Permit Conditions 21.H.

vi. A copy of the annual subsidence survey data results in accordance with Permit Condition 21.I.

vii. Brief explanation describing deviations from normal production methods.

viii. A copy of any leaks and spills reports submitted in accordance with Permit Condition 15 above.

ix. A copy of analytical data results from annual groundwater monitoring including the QA/QC Laboratory Summary.

x. An updated Area of Review (AOR) summary (WQCC Regulation 20.6.2 NMAC) when any new wells are drilled within 1/4 mile of any UIC Class V Geothermal Injection Well.

xi. A "Miscellaneous" section to include any other issues that should be brought to the OCD's attention.

xii. Discharge Permit Signatory Requirements pursuant to WQCC Regulation Subsection G of 20.6.2.5101 NMAC.

22. Transfer of Discharge Permit: Pursuant to WQCC Regulation Subsection H of 20.6.2.5101 NMAC, the owner/operator and new owner/operator shall provide written notice of any transfer of the permit. Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a facility with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer brine well operations until proper

bonding or financial assurance is in place and approved by the OCD. OCD reserves the right to require a modification of the permit during transfer.

23. **Closure:** The owner/operator shall notify OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the owner/operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure. OCD may require additional financial assurance if surface water and/or ground water is impacted pursuant to WQCC Regulation Paragraph (11) of Subsection A of 20.6.2.3107 NMAC.

24. **Certification: Los Lobos Renewable Power, L.L.C. (Owner/Operator)**, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Owner/Operator** further acknowledges that OCD may, for good cause shown, as necessary to protect fresh water, public health, safety and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: *"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."*

_____
Company Name - print name above

_____
Company Representative - print name

_____
Company Representative - signature

Title _____

APPENDIX 1

WATER QUALITY MONITORING PROGRAM

Table 1
Ground Water Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Well location
MW-1 [1]	Annual	GW	Analyze for dissolved fraction of all 20.6.2.3103 NMAC Constituents	Shallow MW (water table) located ~100' downgradient (North) of Class V IW 42-18 and associated pits (OCD)
MW-3 [1]	Annual	GW	VOCs (8260B)	Shallow MW (water table) located ~100' downgradient (North) of Class V IW 51-07 and associated pits (OCD)
MW-2 [1]	Annual	GW	SVOCs (8270C)	Shallow MW (water table) located ~100' downgradient (North) of Class V IW 53-12 and associated pits (OCD)
MW-4 [1]	Annual	GW	PAHs (8310)	Shallow MW located ~1500' (Northwest) of DW 45-07 directly downgradient from facility (OCD)
MW-5 [1]	Annual	GW	TPH (418.1)	Shallow MW (water table) located ~1000' upgradient (South) of the nursery greenhouses 3 & 4 to monitor background (OCD)
MW-6 [1]	Annual	GW	Metals - dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods)	Shallow MW (water table) located ~100' downgradient (North) of DW 53-07 and associated pits (OCD)
MW-7	Annual	GW	Mercury (7470A/7471A)	Shallow MW (water table) located ~100' downgradient (North) of DW 13-07 and associated pits (OCD)
			General Chemistry (Methods specified at 40 CFR 136.3)	
			Uranium (6010B/6020), Radioactivity (E903/E904)	
			Radon (by EPA Method or method approved by OCD)	

ID*	Frequency	Media	Analytical Suite/Method	Approximate Well location
MW-8 [1]	Annual	GW		Shallow MW (water table) located ~100' downgradient (North) of DW 33-07 and associated pits (OCD)
NW-1 [1]	Annual	GW		Similar to monitoring & sampling plan from Los Lobos.
NW-2 [1]	Annual	GW		Similar to monitoring & sampling plan from Los Lobos.
NW-3 [1]	Annual	GW		Similar to monitoring & sampling plan from Los Lobos.

Table 2
Geothermal Injection Wells and
Production/Development Wells Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Well Location
DW 13-07[1,3]	Annual	GW	Analyze for dissolved fraction of all 20.6.2.3103 NMAC Constituents VOCs (8260B) SVOCs (8270C) PAHs (8310) TPH (418.1) Metals - dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods) Mercury (7470A/7471A) General Chemistry (Methods specified at 40 CFR 136.3) Uranium (6010B/6020), Radioactivity (E903/E904) Radon (by EPA Method or method approved by OCD)	As Proposed in Application
DW 33-07[1,3]	Annual	GW		
DW 45-07[1,3]	Annual	GW		
DW 47-07[1,3]	Annual	GW		
DW 53-07[1,3]	Annual	GW		
IW 42-18[1,3]	Annual	GW		
IW 51-07[1,3]	Annual	GW		
IW 53-12[1,3]	Annual	GW		

Table 3
Water Supply Wells Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
TG 52-07	Annual	GW	Analyze for dissolved fraction of all 20.6.2.3103 NMAC Constituents VOCs (8260B) SVOCs (8270C) PAHs (8310) TPH (418.1) Metals - dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods) Mercury (7470A/7471A) General Chemistry (Methods specified at 40 CFR 136.3) Uranium (6010B/6020), Radioactivity (E903/E904) Radon (by EPA Method or method approved by OCD)	Similar to monitoring & sampling plan from Los Lobos.
AmeriCulture No. 1 Federal	Annual	GW		
AmeriCulture State Well No. 2	Annual	GW		
McCants No. 1 State	Annual	GW		
Burgett No. 1 State	Annual	GW		
Burgett Greenhouse No. 2	Annual	GW		

Table 4
Holding Ponds, Drainage Ditches, Pits and Ponds Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
GH Holding Pond No. 1	Quarterly[4]	SW	Metals- dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods) General Chemistry (Methods specified at 40 CFR 136.3	Similar to monitoring & sampling plan from Los Lobos.
GW Holding Pond No. 2	Quarterly[4]	SW		
Drainage Ditch No. 1 (East)	Quarterly[4]	SW		
Retention Pond No. 1	Quarterly[4]	SW		
Bermed Canal No. 1	Quarterly[4]	SW		
Pit Associated with Well 13-07	Within 30 days of use	SW		
Pit Associated with DW 33-07	Within 30 days of use	SW		
Pit Associated with DW 45-07	Within 30 days of use	SW		
Pit Associated with DW 47-07	Within 30 days of use	SW		
Pit Associated with DW 53-07	Within 30 days of use	SW		
Pit Associated with IW 42-18	Within 30 days of use	SW		
Pit Associated with IW 51-07	Within 30 days of use	SW		

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
Pit Associated with IW 53-12	Within 30 days of use	SW		

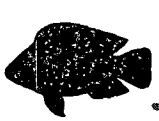
Table 5
Cooling Tower Effluent Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
Cooling Tower Effluent	Daily [5]	Effluent	Metals - dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods) BOD_5 (405.1/5210B) COD (410.2) General Chemistry (Methods specified at 40 CFR 136.3	Similar to monitoring & sampling plan from Los Lobos.

BOD_5: Biochemical Oxygen Demand
COD: Chemical Oxygen Demand
DW: Development/Production Well
DWL: Dynamic Water Level
GH: Greenhouse
GW: Ground Water
IW: Injection Well
MSL: Mean Sea-Level
MW: Monitor Well
NW: Nested Well
SW: Surface Water
SWL: Static Water Level
* Quarterly Static Water Level (SWL): MSL to nearest 0.01 feet prior to sampling event

1. Wells must be installed in advance of system startup and sampled.
2 Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year. Monitoring must be conducted no later than 30 days after the conclusion of the irrigation season but no later than November 15 of each year.
3 One time sampling event with static water level (SWL) mean sea-level (0.01 ft. accuracy) measurements in advance of system start-up. Thereafter, monthly sampling for the first six months with dynamic water level (DWL) recording is required. After six months of monthly monitoring, the sampling shall be conducted at least annually.
4 Sample quarterly while in use. If organics are evident, sampling with analytical methods similar to MWs shall be implemented during the sampling event.
5. Daily for 10 business days at system startup; thereafter weekly for two months; thereafter based on establishing correlation with the 3D Tresar Control Monitoring System.

Note: All wells with phase-separated hydrocarbons (PSHs) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form listing all of the impacted wells, date inspected, product thickness measured to 0.01 of a foot, and amount of product/water recovered. If PSHs are observed in a monitoring well, then appropriate steps must be taken to recover the PSHs using the best available technology.



AmeriCulture

RECEIVED OCD

2009 JUN 30 P 1:20

June 29, 2009

Florene Davidson
Commission Clerk, Oil Conservation Commission
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: PETITION FOR REVIEW OF LOS LOBOS RENEWABLE POWER, L.L.C. - LIGHTNING DOCK GEOTHERMAL NO. 1 (HI-01) DISCHARGE PERMIT (GTHT-001) NE/4 SW/4 OF SECTION 7, TOWNSHIP 25 SOUTH, RANGE 19 WEST, NMPM, HIDALGO COUNTY, NEW MEXICO CLASS V INJECTION WELLS AND GEOTHERMAL PRODUCTION OR DEVELOPMENT WELLS, TOWNSHIP 25 SOUTH, RANGES 19 AND 20 WEST, NMPM, HIDALGO COUNTY, NEW MEXICO

Dear Florene:

Pursuant to N.M. Stat. Ann. § 74-6-5 (2008) and NMAC 20.6.2.3112, AmeriCulture, Inc. ("AmeriCulture") hereby submits this letter of Petition for Review before the Commission regarding the above referenced permit application and corresponding permit. We have reviewed the Order of the Division ("Order"), dated May 29th, 2009, which we received on June 3, 2009. The Order provides for many appropriate and necessary safeguards for protecting regional groundwater. However, while many of the concerns raised by AmeriCulture during the hearing process and in post-hearing submissions were addressed, others were not. This letter is intended to itemize AmeriCulture's remaining concerns for which it petitions for review by the commission. AmeriCulture may amend, modify or add to this list within 30 days of the OCD posting the final discharge permit.

AmeriCulture submits the following issues and relief sought:

Issue (1) AmeriCulture maintains that the overall sampling frequency set forth in the permit is not frequent enough to insure the safety of regional groundwater. The proposed 72-hour notice provides a false sense of security as it simply requires that the Applicant quickly report exceedences from grab samples taken on a single day over the course of an entire year. It must be assumed that the Applicant, if left to its own unsupervised discretion, would not maintain an internal sampling and reporting regimen that could potentially require that it shut in its injection wells. As written, if a groundwater contamination develops shortly after an annual sampling event, the contamination could theoretically remain undetected for nearly a year. Such a late detection may both jeopardize regional groundwater and limit the effectiveness of abatement measures.

25 Tilapia Trail, Animas, NM 88020 • Ph: 505.548.2328 Fax: 815.301.8809
e-mail: damon@americulture.com • www.americulture.com

Relief Sought: The permit should require quarterly sampling frequency for the first two years and semi-annually thereafter. In the event any water quality standard specified at WQCC Regulation 20.6.2.3103 NMAC is exceeded, sampling frequency for the particular analyte, for which the standard was exceeded, should be increased to monthly for a period of no less than two years to demonstrate that the corresponding abatement response and operational changes are affective.

Issue (2) AmeriCulture holds a valid geothermal lease with the State of New Mexico (GTR 304-1) and makes annual rent and royalty payments on said lease. AmeriCulture does not waive any claim to correlative geothermal rights. The permit language found in Paragraph 20(G) protects only the correlative rights of those in the high temperature (>250F) portion of the reservoir. The validity of correlative rights for users of geothermally-heated waters having temperatures less than 250F has yet to by resolved in the courts and therefore should not be limited by the permit text.

Relief Sought: The language of Paragraph 20(G) should be expanded to include all correlative rights, present and future.

Issue (3) AmeriCulture has learned that the proposed cooling tower will have a treated lumber superstructure. We found no mention of this in the permit application, nor did Raser present evidence or expert testimony that the treatment chemicals present in the lumber are not considered toxic or water contaminants. Common chemical preservatives used in treated lumber include Chromated Copper Arsenate (CCA-C), Alkaline Copper Quat (ACQ-C, ACQ-D, ACQ-D Carbonate), Micronized Copper Quat (MCQ), Copper Azole (CBA-A & CA-B) and Sodium Borates (SBX/DOT), among others. While AmeriCulture would hope that chemical preservatives selected by Applicant do not constitute toxic pollutants and would not contribute to water contamination, the burden of proof for their safe use lies with the Applicant. Due to Applicant's failure to disclose said chemical preservatives, the public hearing and review process was blind to their potential impacts. As such, Protestants were not afforded the opportunity to assess the potential for chemical contamination of groundwater, evaluate the potential for toxicity to fish, or present evidence or other expert testimony in opposition of their use.

Relief Sought. Applicant should be required to disclose the chemical preservative(s) present in lumber to be used in the cooling tower structure, and present technical data to support its/their safe use and lack of toxicity. Any and all chemical preservatives, if considered water contaminants or toxic chemicals, should be added to the battery of analytes listed in the monitoring plan and added to the list of chemicals subject to aquatic toxicity testing. The statement in the last sentence of paragraph 40 of the Order may have to be reevaluated if any of the chemical preservatives are classified as toxic pollutants.

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e-mail: damon@americulture.com • www.americulture.com

AmeriCulture

Issue (4) The permit should include adequate financial assurances from Raser to insure, in the form of a bond, that in the event of an environmental contamination, that the costs for any abatement or environmental cleanup, and hence the protection of the interests of the citizens of New Mexico, are guaranteed. This is even more critical since Raser intends to operate through the use of subsidiaries or affiliated entities with little or no assets. It may be necessary to re-open the hearing for the limited purpose of taking testimony on the amount to be bonded in the event of environmental damage.

Relief Sought: The Applicant should be required to maintain at the minimum a bond in the amount sufficient to abate or remediate the groundwater resource should their activities result in an environmental contamination. Applicant's corporate parent, Raser Technologies, Inc. should be bound by any and all financial assurances of Applicant to insure financial accountability.

I certify that I served this Petition for Review on the following parties by overnight courier this 29th day of June 2009.

Damon E. Seawright
President
AmeriCulture, Inc.
25 Tilapia Trail
Animas, NM 88020
(505)670-5220

New Mexico Oil Conservation Division
Attn: Mr. Carl Chavez
1220 S. St. Francis Drive
Santa Fe, NM 87505

Florene Davidson
Clerk, Oil Conservation Commission
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Holland and Hart, LLP
Attn: Mr. Mark Sheridan
110 North Guadalupe, Suite 1
Santa Fe, NM 87501
(Counsel for Raser Power System, LLC)

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 14246
ORDER NO. R-13127

APPLICATION OF RASER POWER SYSTEMS, LLC, FOR APPROVAL OF A DISCHARGE PLAN PURSUANT TO THE WATER QUALITY ACT, HIDALGO COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 9:00 a.m. on December 1, 2008, and April 7, 2009 at Lordsburg, New Mexico, before Hearing Officer David K. Brooks.

NOW, on this 29th day of May, 2009, the Division Director, having considered the testimony, the record and the recommendations of the Hearing Officer,

FINDS THAT:

Background and Procedure

(1) Due public notice has been given, and the Division has jurisdiction of the subject matter of this case.

(2) Los Lobos Renewable Power, LLC ("Applicant" or "Los Lobos"), a subsidiary of Raser Power Systems, LLC, filed an administrative application with the Environmental Bureau of the Division for approval of a discharge plan pursuant to the New Mexico Water Quality Act [NMSA 1978, Sections 74-6-1 through 74-6-17] and applicable rules of the Water Quality Control Commission ("WQCC"), for a geothermal power generating facility ("the facility") to be located in the NE/4 SW/4 of Section 7, Township 25 South, Range 19 West, NMPM, in Hidalgo County, New Mexico.

(3) After initial public notices were given, Americulture, Inc. ("Americulture" or "Protestant") protested the application. The Director of the Division ("the Director")

determined, pursuant to 20.6.2.3108.K NMAC, that there was substantial public interest in this application, and designated a hearing officer to conduct a public hearing in accordance with 20.6.2.3110 NMAC. The hearing was convened only to consider approval, disapproval or conditional approval of the proposed discharge plan. No issue under the Geothermal Resources Conservation Act [NMSA 71-5-1 through 71-5-24] was addressed in this proceeding.

(4) At the initial hearing on December 1, 2008, Applicant and the Division each appeared through counsel and presented evidence in support of the proposed discharge plan. Protestant appeared through a non-attorney corporate representative and presented evidence in opposition.

(5) The evidence at the initial hearing showed that:

(a) applicant intends to locate one of three proposed Class V injection wells included in the discharge plan at a location different from that indicated in the application and in the original public notice; and

(b) the Division staff had not yet obtained all of the technical information it needed from Applicant and had not finalized its recommendations for conditions to be included in a final draft permit.

(6) In order to provide public notice of the changed location of one of the injection wells and to allow the Division to complete a recommended draft permit, the Hearing Officer recessed the hearing. The hearing re-convened pursuant to a new hearing notice on April 7, 2009, at which time Applicant, the Division and Protestant appeared and presented additional evidence, and the Division offered in evidence a revised draft permit. After the hearing, the Division staff filed a further, non-substantive revision of its draft permit. Because the Division did not file its final draft permit 30 days prior to the hearing, the Hearing Officer re-opened the record to allow Protestant to file comments on the final draft permit. The Protestant filed comments, and the administrative record was finally closed on May 4, 2009.

The Evidence

(7) Applicant's witnesses, Michael Hayter and Roger Perry, testified that Applicant proposes to construct a binary-cycle geothermal power generating facility, including five geothermal production wells ("the production wells") that will lift geothermal water from approximately 3,400 feet below the surface, presumably from the Horquilla Limestone formation, and three water injection wells ("the injection wells") that will re-inject the spent geothermal waters, together with waste water from the plant's cooling tower, into the source formation. Applicant anticipates that the subterranean heat source will re-heat the injected water and allow it to be re-produced for further geothermal use.

(8) The cooling tower water will be produced from a water supply well located in proximity to the facility. It will be treated with biocides and anti-corrosion agents.

(9) Applicant presented a witness, Jennifer Wright, from NALCO, the company which designed the chemical treatment program for the cooling tower water. Ms. Wright testified that the chemical agents that would be introduced into the cooling tower water, in the quantities that would be used, would not cause the water to exceed WQCC water quality standards, nor introduce any toxic pollutants. Ms. Wright also described the 3D-TRASER system that would monitor and control the levels of chemical agents used in the water treatment process to prevent introducing excessive amounts of these agents.

(10) The Division's witness, Carl Chavez, an environmental engineer, described the Division's application review process and the provisions of the proposed draft permit, including the groundwater monitoring requirements included in the draft permit and the tables attached thereto.

(11) Protestant presented the testimony of James Witcher, a hydro-geologist with substantial experience studying the area where the facility will be located. Mr. Witcher offered a detailed interpretation of the region's geology. He specifically testified that the geothermal water so far discovered and produced in the area could not have originated in or moved through the Horquilla Limestone, the formation which Applicant's witness posited as their geothermal source formation, because the chemical qualities of waters produced from Protestant's wells and other geothermal wells in the vicinity indicate that those waters have never moved though a carbonate reservoir.

(12) Though he did not give any specific opinions about hydrologic connections between formations, Mr. Witcher expressed concerns about the injected water's potential to migrate into aquifers from which Protestant and others are producing fresh water. He recommended that the proposed discharge plan be rejected until the Applicant can present further evidence of geologic conditions that could only be obtained by drilling one or more test wells.

(13) Mr. Witcher also expressed a concern that the monitor wells required in the proposed draft permit would be ineffective to monitor water in the aquifers as they were intended to do because of the draw-down of the water table that would result from the proposed operation.

(14) Both Applicant's and Protestant's witnesses testified that no testing had been done on the water in the Horquilla Limestone formation. There was discussion of water tests indicating concentrations of total dissolved solids (TDS) in the range of 1,000 to 1,500 milligrams per liter (mg/l), but it was uncontested that these results were from tests of shallower formations, and not of Horquilla.

(15) No party presented any specific evidence regarding hydrologic connection or lack thereof between the Horquilla and any of the shallower aquifers in the vicinity.

(16) Protestant is in the business of commercial production of Tilapia fish for human consumption. Protestant has a fish farm close to the facility. During the hearing, Protestant's corporate representative, Damon Seawright, made various non-specific observations about water quality considerations that might affect the particular species of fish that Protestant produces, but Mr. Seawright was not sworn, did not testify as a witness and offered no expert or factual testimony, or other evidence, about these matters.

(17) In addition to the parties who entered appearances, several residents of Hidalgo County made comments at the hearing. All supported Los Lobos' application.

Division Director's Findings and Conclusions

(18) Each of the following findings shall constitute findings of fact to the extent that they address factual issues, and conclusions of law to the extent that they address legal issues.

(19) The proposed permit authorizes construction and operation of lined reserve pits at the wells, evaporation ponds, and other elements, in addition to the three Class V injection wells. However, there was no controversy at the hearing concerning these pits, ponds or other elements, and the Director accordingly accepts the conclusion of the Division staff, as evidenced by the staff's endorsement of the draft permit, that these elements present no hazard to any underground source of drinking water.

(20) The controversy at the hearing focused exclusively on the proposed injection wells. The governing standard for determining whether these wells should be permitted is set forth in 20.6.2.3109.C NMAC. That subsection reads, in pertinent part, as follows:

> [t]he secretary shall approve the proposed discharge plan, modification or renewal if the following requirements are met:
>
> ***
>
> (2) the person proposing to discharge demonstrates that approval of the proposed discharge plan, modification or renewal will not result in either concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use, except for contaminants in the water diverted as provided in Subsection D . . . .

(21) The referenced Subsection D provides, in pertinent part, as follows:

> The secretary shall allow the following unless he determines that a hazard to public health may result:
>
> > (1) the weight of water contaminants in water diverted from any source may be discharged provided that the discharge is to the aquifer from which the water was diverted or to an aquifer containing a greater concentration of the contaminants than contained in the water diverted; and provided further that contaminants added as a result of the means of diversion shall not be considered to be part of the weight of water contaminants in the water diverted . . .

(22) Since the injection wells in this case will discharge the same water that was diverted into the same aquifer from which it was diverted, Subsection D of 20.6.2.3109 NMAC applies in this case and counsels approval of the application *unless* the addition of cooling tower water introduces toxic pollutants or other water contaminants that could introduce or cause the water in the injection zone to exceed standards.

(23) There was some discussion during the second hearing about the possibility of injection into an "intermediate zone" between the shallow aquifers from which ground water is now being produced and the geothermal source formation. This possibility, however, need not be considered since the draft permit would not authorize such injection. Paragraph 21.F of the draft permit specifically provides that the injected fluids will be injected into "the geothermal reservoir." From a reading of the entirety of Paragraph 21.F, it is plain that it authorizes injection only into the reservoir from which the geothermal water was produced, be it the Horquilla or some other formation. Injection into an "intermediate formation" would require a permit modification.

(24) The testimony of the NALCO witness, Ms. Wright, established, *prima facie*, that the proposed chemical treatment of the cooling tower water will not cause an exceedance of standards or introduce any toxic pollutant. Protestant offered no contrary evidence. Speculation by a party representative speaking in the role of counsel is not evidence.

(25) The Division proposes further conditions in the draft permit to insure that addition of the treated cooling tower water to the injected fluids will not cause an exceedance of water quality standards or introduce toxic pollutants. Clause (ii) of Paragraph 20.E of the draft permit requires frequent testing and analysis of the fluids to be injected, prior to injection. Clause (v) of Paragraph 20.B expressly requires immediate shut-down "if the concentration of the injection fluids exceed the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background, or if any toxic pollutant . . . is detected." Applicant has indicated that it will accept these permit conditions.

(26) There is an ambiguity inherent in the use of the term "background" in Paragraph 20.B since the draft permit requires numerous different background tests at

different locations. To resolve this ambiguity, the relevant provision of Clause (v) of Paragraph 20.B of the draft permit should be changed to read:

> if the concentration of any water contaminants in the injection fluids exceeds the greater of the standards specified in WQCC 20.6.2.3103 NMAC or background [as established for the injection formation at the injection well location pursuant to Clause (i) of Paragraph 21.D], or if any toxic pollutant . . . is detected.

(27) Protestant's corporate representative, Mr. Seawright, suggested that use of a water tower for cooling, with the attendant necessity to dispose of waste water, might not be the best available technology for the facility, since air cooling could be used. Applicant's witnesses, however, testified that air cooling would not be practical for this facility. Protestant offered no evidence to the contrary. Indeed, Protestant's sole witness, Mr. Witcher, expressly disclaimed any expertise in power plant cooling technology.

(28) Based on Findings (22) through (27), the Director concludes that operation of the proposed Class V injection wells in accordance with the proposed draft permit, as modified in Finding (26), will comply with the applicable standards of Subsections C and D of 20.6.2.3109 NMAC *unless* the injection process causes excursion of the injected fluids, or migration of other waters, into another aquifer (distinct from the source formation) so as to cause an exceedance of standards or background in that aquifer.

(29) Subsection D of 20.6.2.3109 should not be construed to permit re-injection into a source aquifer if the injected fluids cannot be effectively confined to that aquifer or if the injection process itself causes an exceedence of standards in another aquifer.

(30) The evidence in this case is not sufficient to demonstrate the characteristics of, or even the identity of, the injection formation, nor does it demonstrate whether or not hydrologic communication exists between the injection formation and other aquifers in the vicinity that are or may be underground sources of drinking water. The low injection pressure (75 psi) proposed according to the testimony of Applicant's witnesses may suggest that induced migration from the injection zone is unlikely, but does not, in this unknown environment, necessarily demonstrate that it will not occur.

(31) These considerations would tend to support the approach recommended by Protestant's witness, Mr. Witcher, of requiring Applicant to drill exploratory wells and furnish additional data prior to approval of permits for the proposed Class V injection wells.

(32) However, Applicant presented testimony that it would be difficult to secure financing for the necessary exploratory work absent issuance of a permit.

(33) The Division's approach, as evidenced by the draft permit, and the testimony of the Division's witness as to the reasoning supporting certain permit

conditions, has been to impose permit conditions which will allow early detection and response if any excursion of injected fluids or induced migration is discovered.

(34) In view of the unknown geologic environment and the difficulty of obtaining more definitive information, the Director concludes that the Division's approach is a viable one. Accordingly, if the permit conditions are sufficient to allow timely detection and intervention of any process that may cause an exceedence of standards or applicable background in another aquifer, or at another location, the Division can properly conclude that the standard for permit approval established by Subsection C of 20.6.2.3109 NMAC is satisfied.

(35) In any injection well, the first line of defense for preventing excursion of the injected fluids into a formation other than the approved injection formation is the well's casing program. The casing program provided in the draft permit (Paragraph 21.B) is extremely general, doubtless because, as pointed out by Protestant's witness, Mr. Witcher, one does not know where to set casing until one has some knowledge of the stratigraphy. However, the casing program should not be left to chance, or to Applicant's unsupervised discretion. Accordingly, Paragraph 21.B of the draft permit should be amended to require Applicant, prior to setting intermediate or production casing in each of the production and injection wells, to run open hole logs, pursuant to a logging program approved by the Division, and submit the logs to the Division for review together with Applicant's recommendations for casing setting depths, and, in the case of injection wells, for precise definition of the injection interval. Furthermore, Paragraph 21.B should be further amended to require injection to be accomplished through tubing suitable for the character of the injected fluids, to be determined after initial testing of the fluids to be injected. The tubing should be installed in a packer set within 100 feet of the uppermost injection perforations. The casing-tubing annulus should be filled with an inert fluid, and a gauge or approved leak-detection device should be attached to the annulus in order to detect leakage in the casing, tubing or packer.

(36) Although the evidence in this case indicates that injection pressures will be sufficiently low that formation fracture problems are unlikely, Paragraph 21.G of the draft permit, relating to well pressure limits, should be amended to specifically require the Applicant, after testing the injection formation, to report the intended maximum injection pressure to the Division for approval prior to commencement of injection. The injection pressure shall not exceed 0.2 psi per foot of depth from the surface to the top of the injection interval, unless the Applicant secures Division approval for an increase based on demonstration that the increase will not involve a hazard of formation fracture.

(37) Paragraphs 20 and 21 of the draft permit, and the tables attached to the permit, require an extensive ground water monitoring program, and require notification to the Division within 72 hours if any test reveals an exceedence of the higher of WQCC standards or background at any monitoring location, or if any toxic pollutant is encountered. The Division's witness, Mr. Chavez, testified that this monitoring program would be sufficient to provide prompt detection of any introduction of pollutants into existing, identified aquifers resulting from operation of the injection wells. With certain

qualifications indicated below, the Director concludes that the monitoring, testing and reporting requirements of the draft permit are adequate to meet the standards of the applicable WQCC regulations.

(38) In order to address concerns that were articulated at the hearing or in the responses filed, or that arise from the terms of the draft permit, the groundwater monitoring provisions of the draft permit should be modified as follows:

(a) Protestant has requested that its Americulture State Well No. 2 be added to the list of water supply wells to be monitored and tested, as set forth in Table 3 attached to the draft permit. Although no evidence was presented to indicate that monitoring this additional well would produce better or different data, Mr. Chavez testified that the Division staff did not object to adding this well to the list of wells to be tested, and this requested change to the draft permit should be made.

(b) Protestant's witness, Mr. Witcher, articulated concerns that the drawdown of the water table resulting from operation of the facility would render the monitoring wells ineffective (Transcript of 4-7-09 hearing at 143-45). Neither Applicant nor the Division presented any responsive evidence concerning this issue. Accordingly, Clause (i) of Paragraph 20.B of the draft permit, which requires Applicant to prepare a monitoring plan for approval of the Division, should be amended to direct Applicant to specifically address Mr. Witcher's concerns in its monitoring plan, and to describe measures to be promptly taken to remedy the problem if the monitoring wells cease to function.

(c) To avoid any ambiguity, since the draft permit requires extensive background sampling at various locations, the 72-hour notification provision in Clause (viii) of Paragraph 20.B of the draft permit should be amended to require that the notification requirement is triggered if:

> "the concentration of a monitor well sample exceeds the greater of the water quality standards specified in WQCC 20.6.2.3103 NMAC or the background established at that well's location pursuant to the monitoring program described in this paragraph, or if any toxic pollutant is detected, . . ."

(d) Protestant objected to the notification provision as inadequate to remedy any exceedence that might be detected at a location other than an injection well, and pointed out that while Clause (v) of Paragraph 20.B of the draft permit requires shut-down of the facility if an exceedence is detected at an injection site, no comparable requirement exists if an exceedence is detected elsewhere. A distinction between the response required to an exceedence at the injection site and an exceedence at another location is appropriate, since an exceedence at another location would not necessarily be attributable to the operation of facility. However, in this case, where the geologic evidence the

Division would normally require to demonstrate that the injected fluids will be confined to the injection zone is absent, the Division must rely on the adequacy of the permit's requirements for early detection and remedial action to justify a finding that an exceedence in another formation will not result. Accordingly, Clause (viii) of Paragraph 20.B should be amended to expressly require that, in the event of an exceedence as described in that clause occurs, the Applicant, if so ordered by the Division, shall shut down the operation for such time as may be necessary to allow the Division to investigate the cause of the exceedence. If the Division determines that the operation of the facility contributed to the exceedence, it can then invoke the permit modification provisions of Paragraph 5 of the draft permit, as explained by the Division's witness, Mr. Chavez, in his testimony at the hearing.

(39) The Director determines that the draft permit, if modified in accordance with Finding Paragraphs (35) through (38), meets the standard for permit approval provided in 20.6.2.3109.C(2) NMAC .

(40) Paragraph 20.A of the draft permit requires that Applicant conduct an aquatic toxicity test on the Tilapia fish species present at Protestant's facility. Applicant indicated that it will accept this condition. Accordingly, there is no issue about this requirement except that Protestant has argued that Applicant should be required to make a more extensive demonstration that the injected fluids cannot harm Protestant's fish or those who consume Protestant's fish. Such a showing would be required only by applicable WQCC rules only if there were evidence that the injected fluids might contain one or a combination of the potential "toxic pollutant" substances specifically listed in 20.6.2.7.WW NMAC, which is not the case here.

(41) There are some additional provisions of the draft permit that were not explained at the hearing, and that seem to have questionable relevance, and should be modified or deleted:

(a) Paragraph 6 contains an apparently erroneous reference to Class II (oil and gas-related) wells, which are not contemplated in connection with this facility. This provision should be corrected or deleted.

(b) Paragraph 13 requires closure of all Class V wells, without excluding the Class V injection wells that are the subject of the permit. This provision should be deleted unless there are other Class V wells to which it applies, in which event it should be corrected to make clear to what it applies, and to expressly exclude the Class V injection wells contemplated by the permit.

(42) The Division staff should be instructed to revise/correct the draft permit as set forth in this Order. The Applicant's discharge plan should be approved subject to the conditions set forth in the draft permit and the additional conditions described herein.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to 20.6.2.3109 NMAC, the application of Los Lobos Renewable Power Systems, LLC, a subsidiary of Raser Power Systems, LLC, for a discharge permit for construction and operation of a binary-cycle, geothermal power generating facility to be located in the NE/4 SW/4 of Section 7, Township 25 South, Range 19 West, in Hidalgo County, New Mexico, is hereby granted.

(2) Applicant shall be authorized, subject to approval of Applications for Permits to Drill (APDs) by the Division's Artesia District Office, to construct three Class V injection wells at the following locations in Hidalgo County, New Mexico:

Well No. 42-18, to be located 1307 feet FNL and 2123 feet FWL (Unit C) in Section 18, in Township 25 South, Range 19 West, NMPM

Well No. 51-07, to be located 169 feet FNL and 2407 feet FEL (Unit B) in Section 7, in Township 25 South, Range 20 West, NMPM

Well No. 53-12, to be located 1575 feet FNL and 3350 feet FWL (Unit K) of Section 12, in Township 25 South, Range 19 West, NMPM

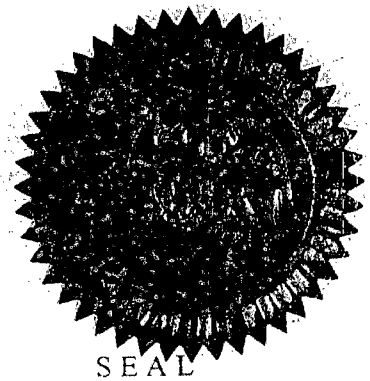
(3) Subject to approval of construction and authorization for start-up, Applicant is authorized to employ the above described wells for injection of produced geothermal waters and power plant cooling tower effluent into the source formation from which the injected geothermal waters were produced.

(4) Approval of this application is subject to the conditions of the final permit, which shall include the conditions provided in the draft permit presented in evidence at the hearing of this case, as amended pursuant to this Order, and the additional conditions described in this Order.

(5) The staff of the Division's Environmental Bureau is directed to revise the draft permit to incorporate the changes and additions described in the finding paragraphs of this Order, and to present the revised draft permit to the Director for signature and transmission to the Applicant for acceptance.

(6) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P.E.
Director