New Mexico Energy, Minerals and Natural Resources Department

April 7, 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 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 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)

OCD Exhibit No. 2
Application of Raser Power System LLC
Case No. 14246
April 7, 2009

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 including permit fees.**

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 (505-476-3491) 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,

Daniel Sanchez
Underground Injection Control Director

DS/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 June 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 for approval. 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 addresses 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 may be disposed of by injection in a Class II 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 all drums, including empty 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 certified 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: 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, 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.

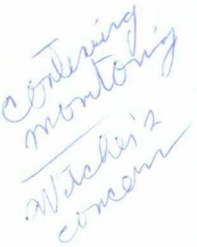
20. Additional Site Specific Conditions - Water Quality Monitoring Program: The owner/operator shall implement the following water quality monitoring programs.

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 6 months days 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.

ii. The owner/operator shall submit a Background and Compliance Report to OCD within 6 months of system startup 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.

iv. The owner/operator shall gauge and sample nested monitor well head elevations (accuracy to 0.01 ft.) recorded and sampled to establish the 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 Water Quality Control Commission (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 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, 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 properly. 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 within 72 hours of its determination that the concentration of the monitor well 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.

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 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 the unlined ditch 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. 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 stored and tested before injection 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.

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 ensure that the above requirement is 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. A 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 Injection Wells and Geothermal Production or Development Wells:

A. Well Identification:

i. **Class V 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.

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

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

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

ii. The owner/operator shall sample 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 well being injected 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, then the owner/operator shall sample 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 other work. The owner/operator shall request approval on form G-101 *"Application Permit to Drill, Deepen or Plug Back - Geothermal Resources Well"* 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 – 300 °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 (approximately 3,000 gpm per well). Hot water shall be routed in parallel and in series through 50 binary cycle (self-contained heat exchanger, evaporator and condenser) power generation units. Condensed produced or effluent water (approximately 225 °F) shall be routed to a lined evaporation pond(s) prior to injection (approximately 75 psig per well) via three (3) Class V geothermal wells into the 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 that will not adversely affect public health, the environment and the correlative rights of any future geothermal operators in the high temperature geothermal reservoir. 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.

The owner/operator shall conduct a thirty (30) minute casing pressure test at a minimum of 600 psig (set packer above casing shoe to isolate formation from casing) at least once in CY 2009 and at least once in CY 2013.

Testing Schedule:

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

CY 2013: 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 reports. OCD may require the owner/operator to perform additional well surveys, tests, etc. A subsidence monitoring program is required in the annual reports and shall include well top-of-casing and ground elevation modern surveying (Accuracy: 0.01 ft.) on an annual basis in order to demonstrate that there are no subsidence issues. If the owner/operator cannot demonstrate the integrity 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 or disposal 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 reports. 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 its Class V Geothermal Injection Well(s).

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. 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 23 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 a copy of the form G-101 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 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 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) SVOCs (8270C)	Shallow MW (water table) located ~100' downgradient (North) of Class V IW 51-07 and associated pits (OCD)
MW-2 [1]	Annual	GW	PAHs (8310)	Shallow MW (water table) located ~100' downgradient (North) of Class V IW 53-12 and associated pits (OCD)
MW-4 [1]	Annual	GW	TPH (418.1) Metals - dissolved (6010B/6020) including Bromide, Lithium, Rubidium, and Tungsten (by approved EPA methods)	Shallow MW located ~1500' (Northwest) of DW 45-07 directly downgradient from facility (OCD)
MW-5 [1]	Annual	GW	Mercury (7470A/7471A)	Shallow MW (water table) located ~1000' upgradient (South) of the nursery greenhouses 3 & 4 to monitor background (OCD)
MW-6 [1]	Annual	GW	General Chemistry (Methods specified at 40 CFR 136.3)	Shallow MW (water table) located ~100' downgradient (North) of DW 53-07 and associated pits (OCD)
MW-7 [1]	Annual	GW	Uranium (6010B/6020), Radioactivity (E903/E904) Radon (by EPA Method or method approved by OCD)	Shallow MW (water table) located ~100' downgradient (North) of DW 13-07 and associated pits (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[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[3]	Annual	GW		
DW 45-07[3]	Annual	GW		
DW 47-07[3]	Annual	GW		
DW 53-07[3]	Annual	GW		
IW 42-18[3]	Annual	GW		
IW 51-07[3]	Annual	GW		
IW 53-12[3]	Annual	GW		

Table 3
Water Supply Wells Monitoring Program

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
TG 52-07 [1]	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 [1]	Annual	GW		
McCants No. 1 State [1]	Annual	GW		
Burgett No. 1 State [1]	Annual	GW		
Burgett Greenhouse No. 2 [1]	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		

ID*	Frequency	Media	Analytical Suite/Method	Approximate Location
Pit Associated with IW 51-07	Within 30 days of use	SW		
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) General Chemistry (Methods specified at 40 CFR 136.3	Similar to monitoring & sampling plan from Los Lobos.

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. Monitor 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.