AmeriCulture

May 4, 2009

Florene Davidson
Division Administrator, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

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 Florene:

Per Hearing Examiner Brooks' e-mail communication of 20 April 2009, AmeriCulture is submitting herewith additional submissions pursuant to above referenced application. AmeriCulture has elected to use the file ("Draft Permit") sent to AmeriCulture by Ms. Altomare (RaserGT-001-4-10-2009_permitdraftCLEAN) as a framework for its comments. Each comment is linked to the relevant text in the Draft Permit via a numerical tag.

Should you have any questions or comments, or should you find any deficiencies, please call me at (505)670-5220.

Sincerely Yours,

Damon E. Seawright
President

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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.***

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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.

Summary of Comments on

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:55:48 PM

Comment: The permit language is written in a manner to suggest that in the event that any water quality standard specified at WQCC Regulation 20.6.2.3103 NMAC is being or will be exceeded that the Division Director may merely modify the permit to accomodate the violation. Exceeding any water quality standard specified at WQCC Regulation 20.6.2.3103 NMAC or background, whichever is higher, is strictly prohibited and cannot simply be allowed through a modification of the permit. The permit should include language that specifically sets forth that Raser's operations will be shut in should WQCC standards set forth in NMAC 20.6.2.3103, or background, be exceeded in any of the monitoring or water supply wells as a result of Raser's activities.

Proposed modification: The Division Director will cause the facility to be shut in, and may may require a permit modification .... surface water in New Mexico. The shut in will remain in effect until all water quality standards specified at WQCC Regulation 20.6.2.3103 NMAC, or background, whichever is higher, are met.

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.

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

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/4/2009 11:04:38 AM
Comment: We learned during the cross examination of Raser expert witness Mike Hayter that the injection well devised by John Shomaker and mentioned in his September 19th, 2008 e-mail to Jim Rosser, designed to "maintain the heads" of Americulture completions are one in the same as well 51-07. (That is one of the injection wells will not have an impervious cap to prevent discharge water from migrating up and into the shallow aquifer that supplies drinking water in the Animas Valley.) This dangerous scheme is designed to maintain water levels by allowing contaminated discharge water to mix with the drinking water to avoid claims of impairment of the water rights of AmeriCulture and others. We learned from further examination of Jim Witcher, that the hydraulic connection required to make this scheme work introduces the possibility of chemical contamination of AmeriCulture's production wells. The injectate is anticipated to have higher TDS than surrounding ground waters and it is possible, in fact likely, that the injected water will also migrate out into surrounding lower-TDS groundwater, resulting in contamination. Each and every one of Raser's injection well completions must be required to terminate below confining cap rock to prevent vertical migration of injected fluids into shallow groundwater.

Proposed modification: (insert at end of paragraph): All injection wells are required to be completed below confining cap rock to prevent vertical migration of injected fluids into shallow groundwater. Evidence of vertical migration of injected fluids into shallow groundwater constitutes an unauthorized discharge and will result in the immediate shut in of the injection well. Any unauthorized discharge must be reported to OCD within 24 hours of detection.

Sequence number: 2
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:56:03 PM
Comment: The owner/operator should bear the entire cost for any investigation, remediation, or abatement

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Sequence number: 3
Author: Damon
Subject: Highlight
Date: 5/2/2009 4:55:37 PM
Comment: The Water Quality Act [74-6-2] defines "water pollution" as one or more water contaminants....with reasonable probability injure...animal or plant life...or unreasonably interfere with the ....use of the property. In the same statute "water contaminant" means any substance that could alter...the biological...qualities of water. Americulture's operations rely upon the normal breeding behavior of Tilapia nilotica. Tilapia breeding is closely linked to the biological qualities of water. If it is determined that Raser's injection activities result in the modification or the biological qualities of ground water, and as a result impair the use of the property, then the injection well(s) should be shut in.

Proposed modification: (insert at end of paragraph) If it is determined that the injection activities of the owner/operator has negatively modified the biological qualities of groundwater, resulting in a negative sub-lethal affect on the Tilapia fish species present at the AmeriCulture aquaculture facility, then the injection well(s) will immediately be shut in until such affect has been remediated or abated.

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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 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 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 and contact the OCD for further instructions 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.

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:26:03 PM
Comment: The monitor well design is inadequate to provide long-term sampling viability with evolving cone of depression from production and from water mounding associated with injection. Delay in acquiring data while waiting to acquire a drilling contractor and construction of a new monitor well may result in failure to recognize a problem in a timely fashion. Potential solutions may involve longer screen intervals. Furthermore, nested wells, with different and discrete screened intervals at depth, should be required.

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. 1lass V Geothermal Injection Wells and Geothermal Production/Development Wells Monitoring Program:

i. 2he owner/operator shall sample the groundwater at 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 influent from 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.

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:13:14 PM

Comment: The permit should require that before any operations commence, that Raser provide, according to NMAC 20.6.2.3106. C.7, "any additional information that may be necessary to demonstrate that the discharge permit will not result in concentrations in excess of the standards of Section 20.6.2.3101 NMAC..." The proposed permit is grossly inadequate as it allows testing to follow discharge of unknown effluents, rather than the more prudent scheme of testing first to determine the nature of the effluent and only after determining that the effluent meets water quality standards should discharge be permitted. We understand that OCD's proposed permit was structured this way because Raser lacks the resources to test first and discharge later. While such a permit may be financially advantageous to Raser it places the citizens of New Mexico at great risk. OCD should protect New Mexico, its citizens and resources as a first priority. Discharge first and test later is unconscionable and should not be permitted.

Sequence number: 2
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:32:18 PM

Comment: The permit should require that a hydrogeologist report be submitted before final approval of production and injection operations. The report should provide at a minimum the following: a) a description of producing zones in terms of lithology, hydraulic conductivity, and detailed baseline water chemistry; b) the identity of confining units over production and injection zones in terms of lithology and thickness; and c) a ground water model detailing the long term hydrogeologic impact of combined production and injection.

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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 groundwater 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-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 (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 directly to three (3) Class V geothermal wells and 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.

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:23:08 PM
Comment: The language should be expanded to include all correlative rights, present and future.

Proposed modification: The owner/operator.....correlative rights of any geothermal operators, including those of any entity holding a valid geothermal lease issued by the State of New Mexico.

Testing Schedule:

1Y 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

CY 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. 2he 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

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:36:53 PM

Comment: The permit should specify a requirement for surface casing string shoe be located on competent rock in addition to a pressure test of the casing. Afterwards, the cement at the casing shoe should be drilled until formation is encountered and then the hole should be pressure tested again to insure formation integrity at the surface casing shoe.

Sequence number: 2
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:58:54 PM

Comment: Each and every one of Raser's injection well completions must be required to terminate below confining cap rock to prevent vertical migration of injected fluids into shallow groundwater.

Proposed modification: (insert at end of paragraph): Furthermore, all injection wells are required to be completed below confining cap rock to prevent vertical migration of injected fluids into shallow groundwater. Evidence of vertical migration of injected fluids into shallow groundwater constitutes an unauthorized discharge and will result in the immediate shut in of the injection well(s).

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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 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 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,

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/4/2009 11:06:58 AM

Comment: 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. The hearing should be re-opened to for the limited purpose of taking testimony on the amount to be bonded in the event of environmental damage.

Proposed modification: (as paragraph iii) The owner/operator shall maintain at the minimum a bond in the amount of (e.g. $50,000,000.00) to abate or remediate the groundwater resource should their activities result in an environmental contamination.

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		

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:59:23 PM
Comment: The permit should include the AmeriCulture 1 State well in the Water Supply Wells Monitoring Program outlined in Table 3 of Attachment 1.

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 1emi-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.

2ote: 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.

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Sequence number: 1
Author: Damon
Subject: Highlight
Date: 5/2/2009 5:52:39 PM

Comment: The overall sampling frequency is not frequent enough to prevent a potential contamination. 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.

Sequence number: 2
Author: Damon
Subject: Highlight
Date: 5/4/2009 11:01:09 AM

Comment: Current direct-use production wells at Lightning Dock and most water wells in the Animas Valley use line shaft pumps which almost always results in oil floating on the water surface inside the surface casing. However, such line shaft pump oil is not in contact with the aquifer as it is contained inside the surface casing. The note at the bottom should be modified to read: "Monitor wells designed to sample the aquifer at or just below the water table with a screened interval across the water table with phase-separated hydrocarbons (PSHs) must be .... on a spread sheet." Also add to the note: "Wells that are designated as monitoring wells which are equipped with line shaft pumps and PSHs are found floating inside the surface casing are exempt from product recovery."
