Chavez, Carl J, EMNRD

From: Damon Seawright [damon@vtc.net]
Sent: Friday, July 11, 2008 5:00 PM
To: Chavez, Carl J, EMNRD
Cc: 'Damon Seawright'
Subject: Request for Public Hearing
Attachments: Request for Public Hearing LLG 071108.pdf

Dear Carl,

Please find attached a letter requesting a public hearing regarding Los Lobos Geothermal, LLC's Notice of Publication. At your recommendation, I am submitting the letter electronically. Should you need additional information, please feel free to call me at (505)670-5220

Sincerely,

Damon E. Seawright
AmeriCulture, Inc.

This inbound email has been scanned by the MessageLabs Email Security System.

7/14/08
Provided to Mark for approval to set for hearing

Hold off on Setting for Hearing

AmeriCulture

July 11, 2008

New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
Attn: Carl Chavez
1220 S. Saint Francis Drive
Santa Fe, NM 87505

Subject: Request for Public Hearing, pursuant to Notice of Publication by Los Lobos Geothermal, LLC for application GT-001 Lightning Dock Geothermal No. 1

Dear Carl,

We have reviewed the information found on the OCD website pertaining to the above notice. Based on this review, and in response to the Notice of Publication, we hereby request a public hearing that will allow AmeriCulture and other concerned parties to discuss Los Lobos Geothermal, LLC's proposed geothermal power generation project in Animas, New Mexico before the Oil Conservation Commission. We do not believe that the proposed injection scheme and wells comply with the intent or requirements of the rules and statutes of the State of New Mexico that govern water rights, geothermal operations, and geothermal well construction practices:

1. Burgett Geothermal and AmeriCulture utilize a shallow geothermal reservoir contained within a highly silicified Gila Conglomerate host within the outflow plume of the Lightning Dock geothermal system. Isotope and geochemical studies on production water shows the shallow geothermal fluids are dominated by outflow of deep-seated geothermal fluids with hardly any mixing with shallow cold ground water. The deeper geothermal reservoir is the presumptive target of Los Lobos Geothermal (LLG). Overproduction of this reservoir will result in the rapid thermal depletion of the shallower reservoir that both longstanding businesses rely upon, threaten the State's water interest and impair existing water rights and geothermal users.
2. Over production of the shallow reservoir will create a pressure gradient between the shallow geothermal reservoir and cold groundwater aquifer and induce mixing. Because the small geothermal reservoir is confined, pressure or head changes are transmitted more quickly across the reservoir at all depth intervals and locations compared to unconfined or semi-confined groundwater aquifers. Injection south and southeast will force cold geothermal and ground water to flow in and mix in the current geothermal production area. Planned production and injection by LLG will "quench" the shallow outflow plume reservoir with cold injection at the bottom and induced cold ground water inflow at the top. Thermal break through of cold water

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into the LLG production wells in the deep reservoir will occur also from over production and poorly cited injection wells.

3. A 48 hr pump test of the AmeriCulture State 1 well shows that the deeper reservoir (encountered in Steam Reserve 55-7) is in hydraulic connection with the shallow outflow reservoir. This is the only pump test ever conducted at Lightning Dock to assess reservoir transmissivity, reservoir boundaries, and storage. A total or aggregate continuous production on the reservoir approaching or exceeding 2,000 gpm may result in significant long-term drawdown and affect adjacent shallow ground water rights in the Animas basin. The reservoir is already produced in excess of 1,000 gpm for at least the colder months and days of a year. More reservoir tests and geochemistry are required to understand sustainability of the resource for power production in excess of 1 to 2 MWe.
4. Heat flow information indicates that the total natural heat out put is less than 10 MWt (megawatt thermal). This is a very small geothermal system in terms of area and reservoir volume. The natural heat output is driven by a very intense (and almost point source) of thermal upflow. Injection and thermal sweep may be feasible with a larger system with the same thermal output. However, mining heat in this system is not sustainable for any reasonable period of time and will adversely affect current direct-use operations that are more important to the economy of the area than small-scale commercial electrical power generation.
5. The subsurface geology and hydrogeology relating to proposed injection wells 42-18, 62-18 and 82-18 are unknown. Furthermore, there is no mention of confining or cap rock and reservoir units and their depth ranges or thicknesses. As a result, the drilling program is grossly generic and not specific to the subsurface conditions at Lightning Dock. Accordingly, these wells should only be permitted as exploratory test holes until testing and the Class V injection well permitting process is complete within the Water Quality Control Commission (WQCC) procedures.
6. The thickness and depth of the freshwater zones stated in the permit are incorrect. Furthermore, the permit conductor casing (63 ft) does not agree with the casing program in the Drilling Plan (minimum 90 ft and a maximum 200 ft). It is uncertain whether 200 feet is long enough to protect shallow fresh ground water while drilling the surface 13 3/8 inch string to 1,500 ft. Justification for this important aspect of the well design should be included with the permit application.
7. All well applications have the same design even though the wells are in located in different locations from a subsurface geology standpoint. A discussion of the formation or criteria used to select the casing points should be included in the permit application.
8. There has been no well testing in the area of the well permits and therefore reservoir properties are unknown. This is especially critical for the injection wells in order to avoid destruction of the resource and thermal breakthrough on existing production wells.
9. It is inappropriate to simultaneously permit the 3 injection wells with the 5 production wells because there is no requirement to consider geohydrologic data gathered during an initial drilling effort in the location and construction of the injection wells.

10. In the Notice of Publication, the Horquilla Formation is listed as having a TDS of 1,300 mg/L. To our knowledge, no one has determined the water chemistry of this interval. All geothermal chemistry reported or measured to date came from Tertiary volcanics or basin fill deposits.
11. With reference to 20.6.2.3106 NMAC, the following deficiencies exist: 1) there is no plan submitted for evaporative ponds, design, and location, 2) there is no monitoring plan with sampling protocol, monitor locations, or monitor well design, and 3) no geotechnical data is presented or referenced for evaluation of site subsurface conditions and hydrogeology.
12. The AmeriCulture shallow geothermal wells are in direct communication with deep-seated geothermal waters. AmeriCulture also has a geothermal well whose production zone lies between 1,400 feet and 2,100 feet below ground level. AmeriCulture's fish are grown in a mixture of cold ground water and geothermal water. Therefore, injected chemicals should be limited to those approved for potable water. The anti-scaling chemicals listed in the application do not meet this description.

Based on the foregoing, AmeriCulture requests a public hearing. If you have further comments or questions please feel free to contact me at (505)670-5220.

Sincerely Yours,

Damon E. Seawright, Ph.D.
Vice President