

GTHT - 1

**COMPLIANCE &
ENFORCEMENT**

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, August 03, 2012 2:18 PM
To: Brooks, David K., EMNRD
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Gerholt, Gabrielle, EMNRD
Subject: Lightning Dock Geothermal Well 53-07 Letter of Violation Closure Letter

David:

Several weeks back I submitted an LOV review for the above subject well in order to bring closure to the OCD LOV.

Please advise if an OCD closure letter will be issued based on the OCD LOV review of the operator's submittals to the LOV.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US

Website: <http://www.emnrd.state.nm.us/ocd/>

"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at <http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 10, 2012 11:24 AM
To: Janney, David (david.janney@amec.com)
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Shapard, Craig, EMNRD
Subject: FW: LOV for Geothermal Discharge Permit (GTHT-1) Production Well 53-7, dated April 12, 2012

Mr. Janney:

The extension request is approved until Monday COB 5/28/2012. I will reset my calendar to that date.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US

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From: Janney, David [<mailto:david.janney@amec.com>]
Sent: Thursday, May 10, 2012 9:57 AM
To: Chavez, Carl J, EMNRD; Sanchez, Daniel J., EMNRD
Cc: VonGonten, Glenn, EMNRD; mike.hayter@cyrgenergy.com; Michelle Henrie; John Perry; Nick Goodman; 'Ben Barker'
Subject: LOV for Geothermal Discharge Permit (GTHT-1) Production Well 53-7, dated April 12, 2012

Good Morning Gentlemen:

Los Lobos Renewable Power formally requests an extension of two weeks to provide a response the above referenced letter sent to us by OCD.

We are experiencing delays acquiring a notarized copy of the directional survey you requested in the letter. All of the other data you requested in the letter has been compiled.

We believe we can acquire the notarized survey within two weeks and include it in our response to you.

Sincerely,

David W. Janney, PG
Senior Geologist
AMEC Environment and Infrastructure
8519 Jefferson, NE
Albuquerque, NM 87113

505.821.1801 off
505.821.7371 fax
505.449.8457 cell

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New Mexico Energy, Minerals and Natural Resources Department

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Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division



April 12, 2012

Los Lobos Renewable Power, LLC.
c/o: Mr. David Janney, PG
8519 Jefferson, NE
Albuquerque, NM 87113

Via U.S. Certified Mail No.: 7001 1940 0004 7923 1220

Re: **LETTER OF VIOLATION Geothermal Discharge Permit (GTHT-001) Production Well 53-7 Deepened and Directionally Drilled Well Completion, Hidalgo County, New Mexico**

Dear Mr. Janney:

The New Mexico Oil Conservation Division (OCD) is issuing a Letter of Violation (LOV) for Los Lobos Renewable Power, LLC (Los Lobos) geothermal operation located in Section 7, T. 25 S., R. 19 W. State geothermal regulations (Title 19, Chapter 14 et seq. NMAC) require the OCD to issue a LOV for geothermal well drilling and construction operations that do not comply with permit terms and conditions, applicable regulations, or other requirements defined in Chapter 71, Article 5 NMSA 1978.

Los Lobos is in violations of following geothermal regulations:

- 1) § 19.14.27 NMAC (Casing and Cementing Requirements): Failure to comply with the following original OCD approved Well 53-7 G-101 Form (see attachments) well construction requirements: 1) Set 20 inch casing to stipulated depth; 2) Set 13.375 inch casing to stipulated depth; and 3) Set 9.625 inch casing to stipulated depth.
- 2) § 19.14.28 NMAC (Deviation Tests and Directional Drilling): Failure to submit a G-103 Sundry Notice with appropriate details for OCD approval of the well deviation from the original OCD approved Well 53-7 G-101 Form (see attachments) for a sidetrack and/or whip stock well construction procedure that resulted in a directionally drilled and completed geothermal production well.
- 3) § 19.14.52.8 NMAC (Application for Permit to Drill, Deepen or Plug Back-Geothermal Resources Well (Form G-101)): Failure to submit new G-101 for well deepening from the approved depth of 3,400 ft. to 4,438 ft.
- 4) § 19.14.54 NMAC (Sundry Notices and Reports on Geothermal Resources Well): Supportive of comprehensive administrative requirements supporting wells Nos. 1 through 3 above. Failure to submit Sundry Notices and Reports prior to commencing drilling and deepening.

On December 6, 2011, the OCD inquired with Los Lobos about the daily drilling report reflection of term "wipestock", which was later confirmed to be "whipstock" by Los Lobos and directional drilling concerns. Los Lobos responded on the same day that it was not directionally drilling. The OCD has received no G-101 Form requesting deepening and directional drilling of the well, but upon review of the well completion report from the Bureau of Land Management (BLM), the OCD confirmed that the well was deepened to 4,438 ft. and OCD has concerns about breaching formations with brine that may upwell from a natural upward hydrogeological gradient and heat convection into fresh water.

In addition, the operator has indicated to the OCD that certain production and exploratory wells may become injection wells and vice-versa, but the OCD requires completed "Well Type" designations on OCD Forms so it may assess and evaluate well spacing requirements (§ 19.14.23 NMAC) and possible compliance with other applicable state geothermal regulations.

Please be advised that on all well construction G-forms approved by the OCD, the operator must submit G-101 and 103 Forms that reflect any changes from the original OCD approved well construction for OCD approval before implementation. This will ensure that OCD geothermal records reflect the actual well drilling and construction complies with the form approval(s) by the OCD. The OCD must receive all appropriate form submittals in order to review, approve or disapprove and scan the final record into the OCD Administrative Record.

Corrective Actions: Please complete the following actions:

- 1) Submit new G-101 form with the current bottom-hole location information with a project map to scale depicting surface and bottom-hole locations relative to other wells within the project area. The map shall contain section numbers and qtr.qtr. designation to assess spatial separation between wells, etc. in the project area.
- 2) Submit new G-103 form reflecting procedures for directional well drilling.
- 3) Pursuant to 19.14.51.9 NMAC, the owner or operator of any geothermal resources shall keep well records and the OCD has the right to inspect such records. Therefore the OCD requires Los Lobos provide the well log, the chemical composition and physical characteristics of the fluids encountered, directional survey and temperature survey. If Los Lobos does not already have the results for the chemical composition of the water encountered at total depth, then Los Lobos needs to obtain a water quality sample and analyze for general chemistry following ASTM Standards for sampling and analytical laboratory requirements (i.e., QA/QC, Chain-of-Custody, and New Mexico Data Quality Objectives) with pump set near the well completion depth to assess the water quality and any potential threat of breaching formations containing brine and allowing brine to upwell into the protectable fresh water zone(s).
- 4) The OCD requires a tabulation of all deviation tests, sworn to and notarized, to be filed with a G-105 form (geothermal resources well log). In accordance with 19.14.28 NMAC the OCD is requiring that a directional survey be run to establish the location of the producing interval(s). Submit a map with lease boundaries and if the surface and bottom hole locations encroaches on correlative rights of any well owners in the area, the operator shall send a letter to well owner displaying the surface and bottom-hole locations to scale for well owners to assess their water rights. No well shall be intentionally deviated except toward the vertical without prior permission from the division. Permission to deviate a well other than toward the vertical shall be obtained on division form G-103 with copies of said form G-103 being furnished to all other operators owning leases offsetting the drilling tract. The division hereby requires a directional survey and may at its option witness such survey and the Santa Fe office shall be notified of the date and hour all directional surveys are to be conducted. All directional surveys run on any well which was intentionally deviated in any manner for any reason must be filed with the division upon completion of the well. Form G-104, certificate of compliance and authorization to produce geothermal

Letter of Violation
April 12, 2012
Page 3 of 3

resources, will not be approved until the operator has submitted an affidavit that all such directional surveys have been filed.

Please complete the above corrective actions within 30 days of receipt of this letter.

On Federal Lands, the operator must complete OCD G-forms associated with well drilling and construction consistent with submittals to the Bureau of Land Management (BLM) for concurrent reviews by the agencies. While the OCD may defer to the BLM requirements for well drilling and completion, the OCD has jurisdiction over both geothermal regulations and water quality issues under the Water Quality Control Commission (WQCC), which may require the OCD to add additional conditions to its approval in order to protect fresh water quality under its Underground Injection Control Program and Water Quality Act.

Please contact Mr. Carl Chavez of my staff at (505) 476-3490 or CarlJ.Chavez@state.nm.us if you have questions.

Sincerely,



Daniel Sanchez
UIC Director

DS/ejc

cc: GTHT-001 Well File "Compliance and Enforcement"
Mike Smith, BLM
OCD District Office

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@cyrqenergy.com]
Sent: Thursday, December 15, 2011 7:57 AM
To: Chavez, Carl J, EMNRD
Cc: Sanchez, Daniel J., EMNRD; Brooks, David K., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD
Subject: RE: OCD Rescindment of Recent Letter of Violation Letter

Carl,

Thank you very much. We will be in touch to discuss testing plans and to get approvals.

Best regards,
Ben

801-616-6193
707-508-9963

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Thursday, December 15, 2011 7:50 AM
To: Ben Barker
Cc: Sanchez, Daniel J., EMNRD; Brooks, David K., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD
Subject: OCD Rescindment of Recent Letter of Violation Letter

Ben:

Please find attached an electronic version of the Oil Conservation Division letter that we spoke about recently. A hardcopy was sent to you via mail service.

Please contact me if you have questions. Thank you.

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/>
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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)



New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John H. Bemis
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division



DECEMBER 14, 2011

Mr. Ben Barker
Cyrq Energy, Inc.
136 S. Main Street, Suite 600
Salt Lake City, Utah 84101

Via U.S. Certified Mail No.: 7001 1940 0004 7923 1268

Re: **RESCINDMENT OF LETTER OF VIOLATION Geothermal Discharge Permit (GTHT-001) Mechanical Integrity Tests (MITs) Hidalgo County, New Mexico [Production Wells: 45-07 and 55-07]**

Dear Mr. Barker:

The New Mexico Oil Conservation Division (OCD) is writing to inform Cyrq Energy, Inc. (Cyrq) that the "Letter of Violation" dated October 21, 2011 has been rescinded.

Well testing requirements are prescribed in OCD Geothermal Regulations: Title 19, Chapter 14 and Water Quality Control Commission (WQCC) Regulations: § 20.6.2.5000 – 5299 NMAC, during the exploration and operational phase of a geothermal project. If the project proceeds as indicated, well test information will be required to be submitted for all wells where the operator is seeking authorization to either produce and/or inject. Cyrq has indicated to the OCD that certain production wells may be converted to injection wells during the project. An application for authorization to inject must be submitted to the OCD for its approval.

Please be advised that all disposal or injection wells require an Environmental Protection Agency (EPA) MIT after completion. An operator must provide advanced notification to the OCD in order for the MIT to be witnessed. The OCD must receive the original pressure charts in order to confirm the test results and scan the documents into the Administrative Record.

Please contact Mr. Carl Chavez of my staff at (505) 476-3490 or CarlJ.Chavez@state.nm.us if you have questions. Thank you in advance for your cooperation in this matter

Sincerely,

Daniel Sanchez
UIC Director

Mr. Ben Barker
Cyrq Energy, Inc.
December 14, 2011

Attachments

DS/cjc

Xc: GTHT-001 Well File "MITs" and "Enforcement"
Mike Smith, BLM
OCD District Office

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John H. Bemis
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division



OCTOBER 21, 2011

Mr. Ben Barker
Cyrq Energy, Inc.
136 S. Main Street, Suite 600
Salt Lake City, Utah 84101

Via U.S. Certified Mail No.: 7001 1940 0004 7923 1213

Re: **LETTER OF VIOLATION Geothermal Discharge Permit (GTHT-001) Mechanical Integrity Tests (MITs) Hidalgo County, New Mexico [Production Wells: 45-07 and 55-07]**

Dear Mr. Barker:

The New Mexico Oil Conservation Division (OCD) is writing to inform Cyrq Energy, Inc. (Cyrq) that it is in violation of OCD Geothermal Regulation: Title 19, Chapter 14 *et seq.* NMAC (see attachments). All geothermal production/development wells fall under this regulation while geothermal injection and/or disposal wells fall under Water Quality Control Commission (WQCC) Regulations: § 20.6.2.5000 – 5299 NMAC, which are implemented for the OCD Underground Injection Control (UIC) Program for UIC Class V Geothermal and/or any other type wells besides UIC Class I - IV.

Cyrq failed to conduct annual MITs before September 30, 2011, the end of the Federal Environmental Protection Agency (EPA) Fiscal Year 2011 (Oct. 1, 2010 – Sept. 30, 2011). The OCD had sent out an e-mail reminder to Cyrq (formerly known as Los Lobos, Raser Technologies, etc.) on April 15, 2011 (see attachments).

The MIT requires advanced notification to the OCD in order to witness the MIT; the original MIT pressure chart with signatures and test information that reflects a "pass/fail" on the chart; and a copy of the calibration sheet (minimum every 6 months) from the used chart recorder that OCD scans into its well file as confirmation that the MIT requirement has been met.

Please contact Mr. Carl Chavez of my staff at (505) 476-3490 or Carl.Chavez@state.nm.us to schedule MITs for your production wells that need to be completed before December 31, 2011. Failure to meet this date may result in escalated enforcement actions. Thank you in advance for your cooperation in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jami Bailey", is written over a horizontal line.

Mr. Ben Barker
Cyrq Energy, Inc.
October 21, 2011

Daniel Sanchez
UIC Director

Attachments

DS/eje

Xc: GTHH-001 Well File "MITs"
Mike Smith, BLM
OCD District Office

Brine Well EPA 5-Yr. MIT Draft Guidance (30 minute hydrostatic casing closed to formation)

This guidance is intended to provide technical guidance to well operators or technical means to achieve compliance with the EPA Underground Injection Control Regulations and Oil Conservation Division- Oil and Gas Regulations. Other test procedures may exist to achieve compliance with these regulations that the OCD may approve.

- 1) A work over rig must remove all tubing from the hole.
- 2) A packer or plug must be set within 20 feet of the casing shoe depth and piping must be filled, and pressured up from 300 to 500 psi (note: higher pressure is preferred). The casing/tubing annulus must be loaded with inert fluid at least 24 hours prior to testing for temperature equilibrium to be attained.
- 3) Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
- 4) Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
- 5) A continuous recording pressure device with a 1 or 4-hour clock shall be installed on the casing annulus. The pressure range shall not be greater than 500 psig. The chart recorder spring weight shall not exceed 1000 pounds. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months of the test date.
- 6) A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
- 7) OCD must be notified at least 72 hours prior to test for an opportunity to witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test operator may be required to bleed-off well pressure to demonstrate recorder and gauge response into an adequately sized flow-back containment vessel for this purpose. Flow-back fluids from this vessel must be discharged back into the well at the completion of the test.
- 8) The Operator shall supply the following information on the pressure chart:
 - A. Company Name, Well Name, API #, Legal Location.
 - B. Test Procedure: (1) EPA 5-Yr. Casing; (2) Casing + Formation; (3) Both; and (4) Other
 - C. Testing Media: Water, Inert Gas, Oil, etc.
 - D. Date, time started and ending.
 - E. Name (printed) and signature of company representative and OCD inspector

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, April 15, 2011 8:18 AM
To: 'Ben Barker'; 'Michael Hayter'
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD;
'Mike_Smith@blm.gov'
Subject: Lightning Dock Geothermal Project (GTHT-001) UIC Program Mechanical Integrity Testing (MITs) of Wells
Attachments: EPA 5-Yr MIT.DOC

Gentlemen:

Good morning. I'm writing to notify you that the OCD requires your well casing mechanical integrity test (MIT) information to be submitted to the OCD before the end of the Federal UIC Program Reporting Period (i.e., FY Q4 July – Sept.) or before September 30, 2011.

Please find attached the OCD requirements for reporting a successful EPA 5-Yr. MIT on the well casing. Please contact me if you have questions. Thank you.

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>

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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>

witnessing test

- 9) **TEST ACCEPTANCE:** The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:
- A. **Passes** if Zero Bleed-Off during the test.
 - B. **Passes** if Final Test Pressure is within $\pm 10\%$ of Starting Pressure, if approved by the OCD inspector.
 - C. **Fails** if any Final Test Pressure is greater than $\pm 10\%$ of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the casing, or packer, and injected/produced fluids are confined within the piping and injection zones. Wells shall not resume operations until approved by OCD.

Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If operator wishes to make or anticipate changes please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment. OCD recommends that a licensed professional engineer or licensed professional geologist or designee supervise all test procedures and associated field activity.

This rule was filed as Rule G-211.

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 14 GEOTHERMAL POWER
PART 62 ANNUAL GEOTHERMAL TEMPERATURE AND PRESSURE TESTS (FORM G-111)

19.14.62.1 **ISSUING AGENCY:** Energy and Minerals Department, Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico.
[Recompiled 12/31/01]

19.14.62.2 **SCOPE:** [RESERVED]
[Recompiled 12/31/01]

19.14.62.3 **STATUTORY AUTHORITY:** [RESERVED]
[Recompiled 12/31/01]

19.14.62.4 **DURATION:** [RESERVED]
[Recompiled 12/31/01]

19.14.62.5 **EFFECTIVE DATE:** [November 15, 1983]
[Recompiled 12/31/01]

19.14.62.6 **OBJECTIVE:** [RESERVED]
[Recompiled 12/31/01]

19.14.62.7 **DEFINITIONS:** [RESERVED]
[Recompiled 12/31/01]

19.14.62.8 **ANNUAL GEOTHERMAL TEMPERATURE AND PRESSURE TESTS (FORM G-111):**
Annual temperature and pressure tests shall be submitted by the owner or operator of each geothermal resource producing well in accordance with the annual testing schedule published by the division. Flowing temperatures and flowing pressure tests at the wellhead shall be recorded after at least 72 hours of continuous flow at normal producing rates. The well shall then be shut in for 24 hours and shut-in pressure at the wellhead recorded. Results of these tests shall be submitted in duplicate to the Santa Fe office of the division.
[Recompiled 12/31/01]

HISTORY OF 19.14.62 NMAC:

Pre-NMAC History: The material in this Part was derived from that previously filed with the State Records Center and Archives:

Rule G-211, Annual Geothermal Temperature and Pressure Tests (Form G-111), 11/1/83.

History of Repealed Material: [RESERVED]

ANNUAL GEOTHERMAL TEMPERATURE AND PRESSURE TESTS

Operator				Address				Field			County	
LEASE	WELL NO.	LOCATION				Date & Hour Shut In	Production Last 24 Hrs.	Flowing Pres. psi	Flowing Temp. °F	Date & Hour of Tests	Time Shut-in Hrs., Mins.	SI Pres. psig Dead-weight
		U	L	S	T							

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Signature _____ Title _____ Date _____